United States Department of the Interior
Bureau of Land Management

DOI-BLM-ID-I020-2018-0012-EA

Expression of Interest for

Competitive Oil and Gas Lease Sale

Serial Number: IDI-38711

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BLM

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CHAPTER 1 – INTRODUCTION

Background

The Bureau of Land Management (BLM) Idaho State Office received an expression of interest (EOI) for 836.23 acres of split-estate lands located in Bonneville County, Idaho approximately 10 miles northwest of Gray, Idaho to be offered in a competitive oil and gas lease sale. On split estate lands, BLM does not have the legal authority to regulate how a surface owner manages the surface, BLM is responsible for taking reasonable measures to avoid or minimize adverse environmental impacts that may result from federally authorized mineral activity.

The lands were nominated for leasing on January 30, 2017, after a former lease expired. A Determination of NEPA Adequacy (DOI-BLM-I020-2017-0020-DNA) tiered to the 2012 Pocatello Resource Management Plan (2012 Pocatello RMP) Environmental Impact Statement (EIS) and to the 2015 Record of Decision and Approved Greater Sage-Grouse Resource Management Plan Amendment for Idaho and Southwestern Montana (2015 GRSG ARMPA) was prepared by the Pocatello Field Office (PFO) on August 21, 2017, to determine the availability of the requested lands for leasing and to develop stipulations to be attached to the lease. The Idaho State Office posted the Notice of Competitive Lease Sale for IDI-38711 on November 20, 2017, allowing for a 30-day protest period. Two protest letters were received by the Idaho State Office on December 20, 2017. On January 11, 2018, the Idaho State Director concluded that BLM needed to conduct further analysis of impacts of leasing the parcel, in accordance with the National Environmental Policy Act (NEPA), and withdrew the lands from the lease sale.

This EA documents the availability of the requested lands and development of stipulations to be attached to the lease. It also serves to verify conformance with the approved land use plan and provides the rationale for the Field Office's recommendation to offer or defer the parcel from lease sale. The EA is a site-specific analysis of potential impacts that could result with the implementation of a Proposed Action or alternatives to the Proposed Action. The EA assists the BLM in project planning and ensuring compliance with the NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed action. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of "Finding of No Significant Impacts" (FONSI). If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the selected alternative, whether the Proposed Action or another alternative. A DR, including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts.

Purpose and Need for Action

The need is to respond to the nomination request, and meet the BLM's responsibilities under the Mineral Leasing Act of 1920, the Federal Land Policy and Management Act of 1976, Federal Onshore Oil and Gas Leasing Reform Act of 1987, as well as other applicable laws, regulations and policies. The purpose is to analyze the subject parcel for potential leasing as well as ensure that adequate provisions are included in the lease terms and lease stipulations and notices to protect public health and safety, and assure full compliance with the objectives of NEPA and other federal environmental laws and regulations designed to protect the environment and mandating multiple use of public lands.

Location

The lands involved with the EOI are located in Bonneville County, Idaho, approximately 10 miles northwest of Gray, Idaho. The EOI involves the same lands that were leased in closed competitive oil and gas lease IDI-35674 which was issued effective on January 1, 2007 and expired on December 31, 2016. The lands involved include approximately 836.23 acres and consists of five non-contiguous tracts, ranging in size from 40 acres to 320 acres. All the tracts are private lands patented under the Stock-Raising Homestead Act, and are surrounded by private (fee) lands, except for one tract, which abuts with National Forest System lands on the north and east sides. The individual tracts are owned by four different parties. The map in Appendix 1 shows the location of the lands covered by the EOI. The legal description of the lands involved can also be found in Appendix 2.

Conformance with the Applicable Land Use Plan

The Proposed Action and No Action alternatives have been reviewed for conformance with the 2012 Pocatello RMP. The Proposed Action is in conformance with the following RMP Goals, Objectives, and Actions:

Goal ME-2. Develop mineral resources (oil and gas, geothermal, solid minerals) consistent with other resources and uses as part of an ecologically healthy ecosystem.

Objective ME-2.4. Manage approximately 344,500 acres of federal mineral estate as open for fluid minerals leasing (e.g., oil, gas, and geothermal resources).

Action ME-2.4.1. Fluid mineral leasing activities will be subject to standard lease terms, conditions, and applicable special stipulations identified in Appendix E.

Action ME-2.4.4. Any fluid mineral leasing on the following approximately 226,000 acres will include an No Surface Occupancy (NSO) stipulation to protect resources (e.g., soils, wildlife, water, cultural resources) (Figure 13). NSO stipulations may be waived on steep slopes or erodible soils if adequate mitigation measures are incorporated into operations plans.

- Highly erosive soils on slopes greater than 20%
- Steep Slopes, >30%
- Riparian/Wetlands, Perennial Streams, Lakes

Action ME-2.4.6. Special stipulations will be changed only by waiver, exceptions, or modifications as outlined by specific criteria in Appendix E.

The Proposed Action and No Action Alternatives were also reviewed for conformance with the 2015 GRSG ARMPA. Relevant guidance from the 2015 GRSG ARMPA includes:

Objective MR 1: Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of Priority Habitat Management Areas (PHMA), Important Habitat Management Areas (IHMA), and General Habitat Management Areas (GHMA). When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA, IHMA, and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h).

Management Decision MR 1: Idaho and Montana: Areas within Sagebrush Focal Area (SFA) will be open to fluid mineral leasing and development and geophysical exploration subject to NSO without waiver, exception, or modification. Areas within PHMA (outside SFA) and IHMA will be open to mineral leasing and development and geophysical exploration subject to NSO with a limited exception (MD MR 3). GHMA will be open to mineral leasing and development and geophysical exploration subject to controlled surface use (CSU) which includes buffers and standard stipulations.

Management Decision MR 2: In Idaho, parcels nominated for lease in PHMA or IHMA will be evaluated prior to lease offering to determine if development is feasible. In GHMA, parcels will not be offered for lease if buffers and restrictions (including reasonable design features) preclude development in the leasing area.

Management Decision MR 19: BLM Owns Mineral Estate – non-federal surface owner: Where the federal government owns the mineral estate in PHMA, IHMA, and GHMA, and the surface is in non-federal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied as if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.

Relationship to Statutes, Regulations or Other Plans

The Proposed Action is in compliance with federal environmental laws and regulations, Executive Orders, and Department of Interior and BLM policies and is consistent, to the maximum extent possible, with state laws and local and county ordinances and plans, including but not limited to, the following:

- National Environmental Policy Act, January 1, 1970
- Clean Air Act of 1970, as amended (42 USC 7401 et seq.)
- Clean Water Act of 1977, as amended (30 USC 1251)
- The Mineral Leasing Act of 1920, as amended
- Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1732)
- Mining and Mineral Policy Act of 1970
- BLM H-3120-1 Competitive Leasing Handbook
- Instruction Memorandum No. 2018-034 (Updating Oil and Gas Reform – Land Use Planning and Parcel Reviews)
- Migratory Bird Treaty Act of 1918 (MBTA)
- The BLM's policy for management of special status species is in the BLM Manual Section 6840 (USDOI BLM, 2008)
- Endangered Species Act of 1973, as amended (16 USC 1531);
- Eagle Protection Act (16 USC §668-668d)

Scoping, Issues, and Decision to be Made

Scoping

The PFO initiated a 30 day public comment period for the review of the EOI on June 1, 2017, under DOI-BLM-ID-I020-2017-0020-DNA, and four external comments were received. Complete comments and responses are available in the administrative record for DOI-BLM-ID-I020-2017-0020-DNA.

A 30-day protest period was provided following the posting of the Notice of Competitive Lease Sale for IDI-38711. Two protests were received by the Idaho State Office on December 20, 2017. In response to the protests, the BLM decided to withdraw the proposal from the planned lease sale and prepare a site-specific EA to analyze impacts associated with reasonable foreseeable oil and gas development that may occur within the lease nomination area which includes the use of specific technologies such as hydraulic fracturing.

Issues

Internal scoping conducted through meetings of the PFO interdisciplinary (ID) team of resource specialists has involved discussion of the nominated lands, review of external public comments from DOI-BLM-ID-I020-2017-0020-DNA, and protest letters. The following issues were identified:

- The subject lands lie within GRSG GHMA habitat. Fluid mineral lease stipulations required by the 2015 GRSG ARMPA would be applied to the lease where applicable.
- Alternative development should consider reasonable foreseeable oil and gas development that may occur within the lease nomination area, including the use of specific technologies such as hydraulic fracturing. What are the environmental effects of a reasonable foreseeable development scenario?
- Wetland habitats occur within the vicinity of Grays Lake. Fluid mineral lease stipulations would be applied to the lease area to protect perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals.
- Migratory bird migration and nesting habitats occur within the lease area as well as in the vicinity of Grays Lake. Lease stipulations would be applied to the lease area to protect migratory bird nesting.

Decision to be Made

The PFO must provide a recommendation to the Idaho BLM State Director as to whether the lands are available for leasing and the stipulations to be applied, based on the analysis of this EA. The State Director will decide whether to offer the parcel in an upcoming competitive oil and gas lease sale.

CHAPTER 2 –ALTERNATIVES

Alternative A (No Action)

The No Action alternative provides a baseline for comparison of the alternatives, and describes the existing conditions and the continuing trends. If this alternative were to be selected, the EOI would be denied or rejected at this time, and the parcel would not be offered for lease at a competitive lease sale. The lease parcel could be nominated in future sales.

Alternative B (Proposed Action)

The proposed action is to recommend that the 836.23 acre parcel be leased, subject to appropriate stipulations and/or lease notices that would be attached to and made part of the lease (Appendix B).

In conformance with regulations in 43 CFR § 3120.2-1, the oil and gas lease would be issued for a ten-year period and would continue for as long thereafter as oil and gas is produced in paying quantities. If a lessee fails to produce oil or gas within the ten-year period, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, the lease would terminate.

Issuing an oil and gas lease does not involve a specific surface disturbing proposal, but does convey a right to explore for and develop the oil or gas resource and is considered a commitment of resources. Therefore, a meaningful analysis of the differences between alternatives requires that the Proposed Action include assumptions based on current exploration and development

trends and projections. The assumptions used in this analysis include a reasonable foreseeable development (RFD) scenario, which predicts the number of wells and amount of surface disturbance that are reasonably foreseeable to occur within the nominated lands, and the assumption that current and appropriate technologies, methods, and requirements would be applied in the foreseeable future.

If the lease is issued and an Application for Permit to Drill (APD) is submitted or any other exploration, development or production is proposed, BLM would conduct additional site specific, project-specific NEPA analysis. In addition to the stipulations and notices attached to the lease, the approved APD would be subject to site-specific and project-specific Conditions of Approval, and BLM's Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as The Gold Book) (USDOI and USDA, 2007), federal regulations at 43 CFR 3100, and Onshore Oil and Gas Orders would be applied.

Reasonable Foreseeable Development (RFD) Scenario

Although at this time it is unknown when, where, or if future well sites or roads might be proposed on any leased parcel, should a lease be issued site specific analysis of individual wells or roads would occur when a lease holder submits an APD. The RFD scenario described in Appendix Q of the Pocatello Proposed RMP EIS serves as an analytical baseline for identifying and quantifying direct, indirect, and cumulative effects of oil and gas activity and forms the foundation for the analysis of the effects of oil and gas management decisions in planning and environmental documents. For the purpose of this analysis, a separate oil and gas development RFD was developed to analyze site-specific possible post-leasing activities.

The Pocatello Proposed RMP EIS describes the proposed lease area as having a high potential for occurrence of oil and gas resources, but describes the potential for oil and gas development such as drilling and completion of wells for fluid minerals production as low (USDOI BLM, 2010). This is due to the highly complex geology and to the fact that, despite the drilling of numerous exploration wells, there are no producing oil and gas wells or fields within the BLM Pocatello Field Office administrative boundary. The lease nomination area occurs within a geologic province called the Wyoming Thrust Belt Province. The Wyoming Thrust Belt was developed by east-directed compression during the Late Jurassic to Late Cretaceous Sevier Orogeny which resulted in a series of highly folded and faulted stacked thrust sheets that are progressively younger in age to the east. Major thrust faults in the Wyoming Thrust Belt Province include the Paris-Willard, Meade, Crawford, Absaroka, Hogsback-Darby, and Prospect. Thrust loading and structural deformation in the Wyoming Thrust Belt has resulted in a complex evolution of petroleum systems making exploration difficult and limiting drilling success (USDOI USGS, 2017).

Within the eastern part of the province, gas and minor oil generated from the Permian Phosphoria Formation and oil and gas generated from the Cretaceous Aspen Shale has migrated

into conventional reservoirs within conventional traps. The Phosphoria Formation shales are interpreted to have reached thermal maturity for oil generation prior to development of thrust related structures and migrated eastward into traps in what are now the Laramide Basins in Wyoming, Montana, and Colorado. Following oil migration, any oil retained within the Phosphoria Formation shales in the province would have cracked to dry gas from thrust loading during the Sevier and Laramide thrusting events. Most of the Phosphoria Formation shales in the province are now within the thermal window for dry gas or postmature gas. The Aspen Shale reached thermal maturity for generation coincident with movement of the major thrust sheets during the Sevier Orogeny. The shale is the primary source for oil in the convention reservoirs of the thrust belt, but gas has also been generated from the Aspen Shale. Reservoir rocks within the province are mainly carbonates within the Ordovician Bighorn Dolomite, Mississippian Madison Group, Pennsylvanian Amsden Formation, Lower Permian Phosphoria Formation, Lower Triassic Thaynes Formation, Middle Jurassic Twin Creek Limestone, Pennsylvanian Weber and Tensleep Sandstones, and Jurassic Nugget Sandstone (USDOI USGS, 2017).

Exploration within the Wyoming Thrust Belt in the mid-1970s discovered more than 30 oil and gas fields in Utah and Wyoming, most of which are associated with the Absaroka Thrust sheet southeast and east of the lease nomination area, however exploration along the other thrust sheets has been unsuccessful (USDOI USGS, 2017). The lease nomination area occurs between the Meade and Absaroka thrust faults. Cretaceous sedimentary rocks crop out within the lease sale area and are projected to occur below the surface. The Absaroka Thrust Fault is also projected to occur at depth beneath the nominated parcel. Two recent wildcat wells have been drilled on lands in close proximity to the lease sale and have been drilled to depths at approximately 7000 feet targeting the Jurassic Stump – Preuss Sandstone. The CPC 17-1 Well was drilled in 2007 within Township 3 South, Range 43 East, Boise Meridian, NWSW of Section 17 and the Federal 20-3 Well was drilled in 2017 within Township 3 South, Range 43 East, Boise Meridian, S½SE¼NW¼ and NE¼SW¼ of Section 20. Neither of the wells resulted in the discovery of an oil or gas resource, and were plugged and abandoned following drilling.

Based on the area's geology, the lack of access to some of the tracts in the parcel, and the steep topography of the individual tracts that comprise the parcel, combined with the exploration history of the area, BLM concludes it is reasonably foreseeable that, if the lease is sold, only one wildcat well would be drilled within the lease area. The well is unlikely to be productive, and would be plugged and abandoned after testing. The estimated surface disturbance, from well pad and access road construction, would be approximately 14 acres.

The following sections provide a general description of reasonably foreseeable post-leasing activities. None of these activities would be allowed to occur without additional BLM approval, however they are disclosed in this document since leasing gives the lessee the right to conduct such activities somewhere on the lease, and is thus considered an irreversible, irretrievable commitment of resources. All of these activities would require additional NEPA analysis, and additional project-specific Conditions of Approval would be applied.

Well Pad and Road Construction

Equipment for well pad and road construction would consist of dozers, scrapers, and graders. Topsoil from the well pad and access road would be stripped to a depth of approximately four inches and stockpiled for future reclamation. Disturbance for the well pad is estimated to be approximately 4 acres. Interim reclamation of the pad would occur if the well produces commercial quantities of oil or gas. Interim reclamation involves a reduction of the drill pad to a size that accommodates the functions of a producing well. The topsoil would be spread over the interim reclamation area, seeded, left in place for the life of the well, and then used during the final reclamation process. If the well is not productive, final reclamation of the pad and constructed access road would begin as soon as possible. Disturbance would be seeded with a mixture and rate as recommended or required by the BLM, after consultation with the surface owner.

It is anticipated that some new or upgraded access roads would be required to access the well pad and to maintain production facilities, if the well were to go into production. Any new roads constructed for the purposes of oil and gas development would be utilized year-round for maintenance of the proposed well and other facilities, and for the transportation of fluids and/or equipment, and would remain open to the private landowner. Construction of new roads or upgrades to existing roads would require a width of approximately 40 feet. Access roads would be constructed with gravel and capped with road base material. It is not possible to determine the distance of road that would be required because the location of the well would not be known until the APD stage. However, for purposes of analysis it is assumed that disturbance from access roads would be approximately 10 acres (2 miles of road at a 40 foot width). It is estimated that well pad and road construction would take one to two weeks to complete.

Well Drilling and Completion Operations

A drilling rig would be transported to the well pad (along with other necessary equipment). Drilling would commence with well spud. Typical drilling operations would include: adding joints of drill pipe at the surface as the hole deepens; circulating drilling fluids to cool the drill bit and remove the drill cuttings; pulling the drill pipe from the hole to replace worn drill bits; and setting strings of casing and cementing them in place. Air and/or water-based drilling fluid may be used to drill the hole. Prior to setting the production casing, open-hole well logs may be run to identify potentially productive horizons. If the evaluation concludes that sufficient natural gas and/or oil are present and recoverable, steel production casing would be installed and cemented in place. Drilling activities on the well would typically occur 24 hours per day, seven days per week. It could require from two to four weeks to drill the well depending on the depth and complexity of the well. Recent wells have been drilled within the vicinity have been to a depth of approximately 7000 feet.

Water trucks would be used daily to supply water during drilling and, if a discovery is made, for completion operations. Water to drill and complete a well would be hauled from a permitted source. A reserve pit may be constructed on the location to contain drill cuttings and produced fluids. Operators are, with increasing frequency, proposing closed loop drilling mud systems as a best management practice (BMP) to eliminate the need for a reserve pit. In addition, the BLM may require, through a COA applied to the APD, that an operator use a closed loop drilling system if supported by analysis at the APD stage. Drill cuttings would be contained on location during drilling operations, and depending on a variety of conditions including surface geology and drill fluid and drill cuttings composition; cuttings would be disposed of on location as part of the interim reclamation program or would be transported to an approved disposal facility. Drilling mud could be recycled or hauled to an approved disposal facility. When drilling operations are complete, the reserve pit would be fenced and netted to prevent birds and small animals from gaining access to and becoming trapped in the contents of the pit.

Once the well has been drilled and, if found to have sufficient oil and/or natural gas, completion operations would begin. Well completion involves perforating the production casing in target zones, and may be followed by hydraulic fracturing of the formation. Hydraulic fracturing is discussed below. The next phase of completion would be to flow and test the well to determine rates of production. Completion of an individual well could take from 7 to 30 days, depending on the number of completion zones.

Hydraulic Fracturing

Hydraulic Fracturing, or 'fracking", is a well stimulation technique sometimes used to increase oil and gas production from underground rock formations. The RFD includes all reasonable foreseeable development technologies that may be used, and thus, this EA considers the impacts of all reasonably foreseeable oil and gas development regardless of the specific technologies used, including hydraulic fracturing. Hydraulic Fracturing would also be evaluated at the APD stage should the lease parcel be sold and a development proposal is submitted and is found to have discovered economic resources of oil or gas. The following paragraphs provide a general discussion of the fracking process that could potentially be implemented if development and discovery were to occur, including well construction information and general conditions encountered within the PFO.

Hydraulic fracturing has been used by oil and natural gas producers since the late 1940s and for the first 50 years was mostly used in vertical wells in conventional formations. Hydraulic fracturing is still used in these settings, but the process has evolved. Technological developments (including horizontal drilling) have led to the use of multi-staged hydraulic fracturing in unconventional hydrocarbon formations such as low permeable tight sand and shale formations that could not otherwise be profitably produced (USDOI BLM, 2013).

The hydraulic fracturing process involves the injection of a fracturing fluid into the hydrocarbon bearing formation under sufficient pressure to further open existing fractures and/or create new fractures which would allow the hydrocarbons to more readily flow into the wellbore. Fracturing fluids consist of 95 to 99 percent water and a small percentage of special-purpose chemical additives and proppant. Chemical additives utilized in the hydraulic fracturing process may include, but not limited to, hydrochloric acid, anti-bacterial agents, corrosion inhibitors, gelling agents (polymers), surfactants, and scale inhibitors. Proppant consists of synthetic or natural silica sand. Water, fracturing fluid, and proppant would likely be stored in onsite tanks or lined pits during the drilling and completion process. Equipment transport and setup for hydraulic fracturing operations can take several days, and the actual hydraulic fracturing and flowback process can occur in a few days up to a few weeks. Emissions associated with hydraulic fracturing, if proposed, would be analyzed through a site specific NEPA document to ensure that the operation would not cause a violation of the Clean Air Act (USDOI BLM, 2013).

In 2015, the USGS estimated that water consumption for horizontal well was estimate at more than 4 million gallons per oil well and 5.1 million gallons per gas well. The median water use in vertical and directional wells remained below 671,000 gallons per well. For comparison, an Olympic-sized swimming pool holds about 660,000 gallons (USDOI USGS, 2015). Freshwater-quality water is required to drill the surface-casing section of the wellbore per Federal regulations; other sections of the wellbore (intermediate and/or production strings) would be drilled with appropriate quality makeup water as necessary. This is done to protect usable water zones from contamination, to prevent mixing of zones containing different water quality/use classifications, and to minimize total freshwater volumes. With detailed geologic well logging during drilling operations, geologists/mud loggers on location identify the bottoms of these usable water zones, which aids in the proper setting of casing depths.

Several sources of water are available for drilling and/or hydraulic fracturing in Idaho. Because Idaho's water rights system is based in the prior appropriation doctrine, water cannot be diverted from a stream/reservoir or pumped out of the ground for drilling and/or hydraulic fracturing without reconciling that diversion with the prior appropriation doctrine. Like any other water user, companies that drill or hydraulically fracture oil and gas wells must adhere to Idaho water laws when obtaining and using specific sources of water. The decision to use any specific source is dependent on BLM authorization at the APD stage and the ability to satisfy the water appropriation doctrine. From an operators' standpoint, the decision regarding which water source will be used is primarily driven by the economics associated with procuring a specific water source. Potential sources utilized for hydraulic fracturing of water include water transported from outside the state, irrigation water leased or purchased from a land owner, treated water or raw water leased or purchased from a water provider, new diversion from surface water from a stream or reservoir, produced water, reused or recycled drilling water, or onsite water supply well.

The use of horizontal drilling combined with multi-stage fracking activities has led to an increase in oil and gas activity in several areas of the country with unconventional reservoirs (i.e. tight sands, shale oil), which has, in turn, resulted in a dramatic increase in domestic oil and gas production nationally. However, along with the production increase, fracking activities are suspected of causing contamination of groundwater by creating fluid communication between oil and gas reservoirs and aquifers. The Environmental Protection Agency (EPA) recently conducted an assessment of fracking on drinking water resources (https://www.epa.gov/hfstudy) (EPA, 2016). The EPA concluded that fracking activities can impact drinking water resources under some circumstances. Impacts can range in frequency and severity, depending on the combination of hydraulic fracturing water cycle activities and local- or regional-scale factors. The EPA found that the following combinations of activities and factors are more likely than others to result in more frequent or more severe impacts:

- Water withdrawals for hydraulic fracturing in times or areas of low water availability, particularly in areas with limited or declining groundwater resources;
- Spills during the management of hydraulic fracturing fluids and chemicals or produced water that result in large volumes or high concentrations of chemicals reaching groundwater resources;
- Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity, allowing gases or liquids to move to groundwater resources;
- Injection of hydraulic fracturing fluids directly into groundwater resources;
- Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources;
- Disposal or storage of hydraulic fracturing wastewater in unlined pits, resulting in contamination of groundwater resources.

Production Operations

If a well is determined to be commercially productive, production facilities (gas meters, oil and water tanks, separators, etc.) would be installed on the well pad. Production facilities typically consist of two storage tanks, a truck load-out, separator, and dehydrator facilities. Construction of the production facility would be located on the well pad and not result in any additional surface disturbance. Produced oil would be stored on location in tanks and transported by truck to a refinery. The volume of tanker truck traffic for oil production would be dependent upon production of the wells.

Produced Water

Water is often associated with either produced oil or natural gas. Water is separated out of the production stream and, for a newly completed well, can be temporarily disposed of in the reserve pit for 90 days. Permanent disposal options include discharge to evaporation pits or underground injection. Disposal of produced water is regulated by Onshore Order No. 7.

Maintenance Operations

Traffic volumes during production would be dependent upon whether the wells produced natural gas and/or oil, and for the latter, the volume of oil produced. Well maintenance operations may include periodic use of work-over rigs and heavy trucks for hauling equipment to the producing well, and would include inspections of the well by a pumper on a regular basis or by remote sensing. The road and the well pad would be maintained for reasonable access and working conditions.

Plugging and Abandonment

If the wells do not produce economic quantities of oil or gas, or when it is no longer commercially productive, the well would be plugged and abandoned. The wells would be plugged and abandoned following procedures approved by a BLM Petroleum Engineer, which would include requiring cement plugs at strategic positions in the well bore, including any water-bearing zones. All fluids in the reserve pit would be allowed to dry prior to reclamation work. After fluids have evaporated from the reserve pit, sub-soil would be backfilled and compacted within 90 days. If the fluids within the reserve pit have not evaporated within 90 days (weather permitting or within one evaporation cycle, i.e. one summer), the fluid would be pumped from the pit and disposed of in accordance with applicable regulations. The well pad would be re-contoured, and topsoil would be replaced, scarified, and seeded within 180 days of the plugging the well.

CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

General Setting

The lands nominated for competitive oil and gas leasing are located approximately 10 miles northwest of Gray, Idaho. The nominated lands range in elevation from 6400 feet to 7240 feet. The project area contains meadowlands that are vegetated with perennial grasses as well as uplands vegetated with shrubs, grasses, and aspen stands. Livestock grazing is the primary use of lands within the project areas.

Resources Considered in the Analysis

The results of the site-specific assessments indicate that not all of the resources considered are present or would be directly or indirectly affected by any of the alternatives described in Chapter 2. Only those resources that are present and affected are discussed in the following narratives (Table 1.).

Table 1. Resources Considered in the Impact Analysis.

Resource	Resource Status	Rationale
Access	Present, Not Affected	The proposed action and alternative would have no effect to public access, since the lands are private. Should post-leasing development activities occur, the operator would be responsible for negotiating surface agreements with the surface owners and compensation for any loss of crops and tangible improvements. The operator may also need to get permission from adjacent landowners to gain access rights across private (fee) lands.
Air Quality	Present Affected	Impacts are disclosed under Environmental Consequences.
Areas of Critical Environmental Concern (ACEC's)	Not Present	The project area does not occur within or adjacent to any ACECs (USDOI BLM, 2012).
Climate Change	Present, Affected	Impacts are disclosed under Environmental Consequences.
Cultural Resource	Present, Not Affected	The proposed action and alternative would have no impact on cultural resources. The decision to offer the identified parcel for lease would not result in any impact to cultural resources. Post-leasing actions described under the RFD would result in 14 acres of disturbance. Effects to historic properties from an access road or single well pad could be avoided through the judicious placement of the access road and well pad within the lease areas. Any proposed ground disturbing activity must take into account possible eligible sites within the parcel; through judicious placement of planned development, these locations can be avoided and development will have no adverse effect to the sites (see also lease stipulation number 4).
Economic and Social Values	Present, Not Affected	The proposed action and alternative would have little effect on economic and social values within the area, unless a producing field is discovered. The area would remain predominately rural and agricultural.
Environmental Justice	Not Present	There are some scattered minorities and low-income populations in the project area however, the projects and actions described in the alternatives would not affect these populations as described under Executive Order 12898 of 2/11/1994. There would be no disproportionately high and adverse human health or environmental effects to the minority and low-income populations in the area resulting from competitive oil and gas leasing.
Existing and Potential Land Uses	Present, Not Affected	The lands involved contain split estate ownership (private surface/federal minerals) and were patented under the Stock Raising Homestead Act. The surface estate within the project areas is currently utilized for livestock grazing. Should post-leasing development activities be proposed, the operator would be responsible for negotiating surface agreements with the surface owners and compensating them for any loss of crops and tangible improvements.
Fisheries	Present, Not Impacted	Fisheries are present within short reaches of Clark Creek and unnamed tributaries which cross the lease parcel. Lease stipulation number one requires that no occupancy or other surface disturbance be allowed within 500 feet of perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals. No impacts would be expected and no additional analysis is necessary.

Resource	Resource Status	Rationale
Floodplains	Present, Not Affected	"Zone A" floodplains designated by the Federal Emergency Management Agency (FEMA) are present within the nominated parcel and occur along perennial streams and riparian areas (FEMA, 1981). Lease stipulation number one would apply to those areas and requires that no occupancy or other surface disturbance be allowed within 500 feet of perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals. No impacts would be expected and no additional analysis is necessary.
Forest Resources	Present, Not Affected	The proposed action of leasing fluid minerals would have no impact to federal management of forestry products as the nominated area contains private surface estate.
Invasive, Non-Native Species	Present, Not Affected	Invasive, non-native plant species likely occur within lease nomination area as well as surrounding vicinity. COAs applied to a post leasing APD would require the prevention of spread and treatment of invasive, non-native plants.
Mineral Resources	Present, Not Affected	Surface disturbance associated with post-leasing well pad and access road development would not affect any prospectively valuable mineral resources or the recovery of those minerals, except oil and gas.
Migratory Birds	Present, Affected	Impacts are disclosed under Environmental Consequences. Special Status Migratory Bird species will be addressed under this section.
Native American Religious Concerns	Not Present	There are no known ceremonial sites or resources associated with ceremonial practices in the proposed project area.
Paleontological Resources	Not Present	There are no known paleontological resources located in the area.
Prime and Unique Farmlands	Not Present	There are no prime or unique farmlands located within or near the proposed project area.
Soil Resources	Present, Affected	Impacts are disclosed under Environmental Consequences.
Special Status Animals	Present, Affected	Impacts are disclosed under Environmental Consequences.
Threatened and Endangered Animals	Present, Not Affected	No known currently listed Threatened or Endangered species or their habitats (proposed or designated critical) exist within the 836 acre competitive lease sale area (USFWS, Endangered and Threatened Wildlife and Plants; Revised Desingation of Critical Habitat for Contiguous United States Distinct Population Segement of the Canada Lynx and Revised Distinct Population Segment Boundary; Final Rule, 2014) (Copeland, 2010). However, Secondary/transitional/linkage habitat for Canadian lynx (listed Threatened) is identified in the mountainous and forested habitat to the north, west, and southwest of the lease sale area, at the Forest Service and Private land ownership boundary. Moreover, the North American wolverine (proposed Threatened) has similar; habitat requirements as the Lynx, and potential to occur near the lease sale area. Potential to occur is thought to be extremely limited considering the limited record of occurrence of either species in proximity of the lease sale area. Although T&E Animals will not be carried forward into the Environmental Consequences section of the EA; further discussion of the species and associated habitat is located in the Special Status Species Affected Environment.
Threatened, Endangered, and Sensitive Fish	Not Present	There are no waters in the area that support threatened, endangered, or sensitive fish. The lease sale area occurs within the Willow Creek Watershed which is known to be historically inhabited by Yellowstone Cutthroat Trout (YCT). The upper portions of the

Resource	Resource Status	Rationale
		Willow Creek Watershed, including the project area, were subject to intensive agricultural practices and have degraded water quality and quantity as a result. Currently, there are no YCT populations in Grays Lake or in any tributaries to the lake (IDFG, 2007).
Range Resources	Present, Not Affected	The surface estate within the project areas involves private lands that are primarily utilized for livestock grazing. The proposed action and alternative would have no effect to range resources. The decision to offer the identified parcel for lease would not result in any impact to access. Should post-leasing development activities occur, the operator would be responsible for negotiating surface agreements with the surface owners and compensation for any loss of crops and tangible improvements.
Recreational Use	Present, Not Affected	There are no developed recreational facilities or sites within the competitive lease sale area. Dispersed recreation activities occur in the general area, but would not be affected by the proposed action or alternative.
Special Status Plants	Not Present	There are no known special status plants or habitats within the project area.
Tribal Treaty Rights and Interests	Present, Not Affected	The 1868 Fort Bridger Treaty, between the United States and the Shoshone and Bannock Tribes, reserves the Tribes' right to hunt, fish, gather, and exercise other traditional uses and practices on unoccupied federal lands. The surface ownership of the project area is private.
Vegetation	Present, Affected	Impacts are disclosed under Environmental Consequences.
Visual Resources	Present, Not Affected	The application area involves private surface and does not have a designated visual resource management class (USDOI BLM, 2012).
Wastes, Hazardous and Solid	Present, Not Affected	There are currently no known waste issues associated with the proposed lease areas. If post-leasing development of roads or well pads occur, potential release from equipment could be possible. State and Federal regulations would govern the use, storage and disposal of any products that could potentially impact persons or environment. Reporting and mitigation efforts would be required should such an event occur.
Water Quality (Surface and Ground)	Present, Affected	Potential impacts are disclosed under Environmental Consequences.
Wetland and Riparian Zones	Present, Not Affected	Riparian areas and potential wetland areas are present within the lease nomination parcel. Lease stipulation number one would apply for those areas and requires that no occupancy or other surface disturbance be allowed within 500 feet of perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals. No impacts would be expected and no additional analysis is necessary.
Wild and Scenic Rivers	Not Present	There are no wild and scenic rivers near the project area (USDOI BLM, 2012).
Wild Horse and Burro HMAs	Not Present	There are no wild horse and burro HMA's within the application area (USDOI BLM, 2012)
Wilderness	Not Present	There are no wilderness areas or WSAs within or near the project area (USDOI BLM, 2012).
Wildlife Resources	Present, Not Affected	Considering the limited disturbance [14 acres] anticipated as a result of this lease sale (Alternative B), the limited amount of non-sensitive wildlife habitat associated with the proposed lease sale area, and the distance to and abundance of adjacent undisturbed habitat, it is unlikely that significant impacts to non-sensitive wildlife species

Resource	Resource Status	Rationale
		would be realized due to implementation of this project. The lease sale area should largely be considered transitional habitat (only incidental use occurring) for most species. Neither ungulate winter range, nor other crucial habitats were identified within or in proximity of the lease sale area. Wildlife Resources other than Migratory Birds and Special Status Animals will not be addressed in the environmental consequences portion of this EA.
Lands with Wilderness Characteristics	Not Present	There are no lands with wilderness characteristics in or near the project area (USDOI BLM, 2012).

Air Quality, Climate Change, and Greenhouse Gases

Affected Environment – Air Quality, Climate Change, and Greenhouse Gases

Air Quality

The Clean Air Act (CAA) of 1970 requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The EPA has identified six common air pollutants of concern, called criteria pollutants. The criteria pollutants are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), and particulate matter less than 10 microns in diameter (PM_{10}) or 2.5 microns in diameter ($PM_{2.5}$), and sulfur dioxide (S_2O). An air shed must satisfy standards for these six pollutants to ensure compliance with the NAAQS. A geographic area that meets or has pollutant levels below the NAAQS is called an attainment area. An area with persistent air quality problems that exceed federal air quality standards is designated a nonattainment area. The application areas do not occur within a nonattainment area; the nearest nonattainment area, the Fort Hall nonattainment area, is located approximately 57 miles southwest of the application areas. Maintenance areas are those geographic areas that were classified as nonattainment but are now consistently meeting the NAAQS. The nearest maintenance area, the Portneuf Valley Maintenance area is located approximately 50 miles southwest of the project area. Class 1 air quality areas are federal lands that typically include national parks, national wilderness areas, and national monuments and are granted special air quality protections under the federal Clean Air Act. The application areas also do not occur within any class 1 air quality areas. The nearest Class 1 air quality area, Grand Teton National Park, is located approximately 40 miles northeast of the project area (IDEQ, Air Quality, 2018). Appendix 3 demonstrates the Administrative Boundaries for Areas with Sensitive Air Quality in Idaho.

Greenhouse Gases/Climate Change

Greenhouse gases (GHGs) warm the Earth by absorbing energy and slowing the rate at which the energy escapes to space; they act like a blanket insulating the Earth. GHGs include carbon dioxide ($CO_{2)}$, Methane (CH_4), nitrous oxide (N_2O), and fluorinated gases – hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

Different GHGs can have different effects on the Earth's warming and differ from each other by their ability to absorb energy (their "radiative efficiency"), and how long they stay in the atmosphere (also known as their "lifetime").

Global Warming Potential (GWP) was developed by the Intergovernmental Panel on Climate Change (IPCC) to allow comparisons of global warming impacts of different GHG gases. IPCC's fourth assessment report calculated GWPs for individual GHGs relative to CO_2 (IPCC, 2007). GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases, and allows policymakers and decision makers to compare emissions reduction opportunities across sectors and gases (EPA, 2018). Table 2 below demonstrates the GWP for GHG gases.

Table 2. Global Warming Potential for Green House Gases from the Intergovernmental Panel on Climate Change fourth assessment report.

Air Pollutant	Chemical Symbol/Acronym	Global Warming Potential
Carbon Dioxide	CO_2	1
Methane	CH_4	25
Nitrous Oxide	N_2O	298
Hydrofluorocarbons	HFCs	Up to 14,800
Perfluorocarbons	PFCs	7,390-12,200
Sulfur Hexafluoride	SF_6	17,200
Nitrogen Trifluoride	NF_3	22,800

Global Warming Potential Values are relative to CO_2

Utilizing the IPCC fourth assessment report in the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015*, the EPA estimated that total GHG emissions in the United States in 2015 was at approximately 6586.7 million metric tons (approximately 7245.5 million tons) of CO_2 equivalent. CO_2 represented approximately 82.2 percent, CH_4 represented approximately 10 percent, N_2O represented approximately 5.1 percent, and HFCs approximately 2.8 percent of GHG emissions (EPA, 2017).

Environmental Consequences – Alternative A

Under this alternative, the parcel totaling approximately 836.23 acres would not be leased. There would be no subsequent environmental impacts from oil and/or gas construction, drilling, and production activities to air quality, greenhouse gases, or climate change.

Environmental Consequences – Alternative B

Under this alternative the parcel would be available for competitive oil and gas leasing. The decision to offer the parcel for lease would not result in any direct emissions of air pollutants. However, post-leasing development as described in the RFD would result in emissions of criteria pollutants, hazard air pollutants (HAPs), and GHGs. Emissions can be mitigated through application of COAs when an APD is approved.

Air Quality

During construction (access road and well pad construction, interim and final reclamation) and development (drilling) phases, tailpipe emissions from vehicles, diesel powered construction equipment, drill rig, and electrical generators would likely produce pollutants such as oxides of nitrogen (NO_x), CO, volatile organic compounds (VOCs), SO_2, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O). Fugitive dust (PM_{10} and $PM_{2.5}$) would be produced from vehicles, construction equipment, and wind erosion on disturbed surfaces. Impacts to air quality during the construction and drilling phases are anticipated to be temporary and short term. If the well were to go into operation (production) there would be continuous emissions from gas/fluid separator and condensate storage tanks resulting in production of NO_x, CO, volatile organic compounds (VOCs), and HAP emissions. HAPs include benzene, toluene, ethylbenzene, xylene, and n-hexane. Additionally NO_x, CO, VOCs, SO_2, CO_2, CH_4, and N_2O would be produced from tailpipe emissions and road dust consisting of PM_{10} and $PM_{2.5}$ would be produced by vehicles servicing the wells (Kleinfelder, 2014). Emissions from construction, drilling, and production phases would be dispersed and/ or diluted to the extent where any impacts from the proposed action would be indistinguishable from background conditions. The operations described in the RFD would not be expected to exceed NAAQs. Table 3 summarizes estimated emissions associated with construction, development, and operation of one oil well. Should post-leasing activities be proposed, impacts to air quality would be analyzed under a site-specific NEPA document. Through this process, specific mitigation measures and BMPs for air quality, such as requiring storage tanks to be covered and to have low bleed valves installed; using dust suppressants during construction; requiring drill rigs to have Tier II or better diesel engines; limiting venting and flaring; and keeping equipment in good working order, would be attached as COAs for each proposed activity.

Table 3. Emissions estimate for construction, development, and operation of one oil well.

Pollutant	Construction tons per year (tpy)	Development (tpy)	Operation (tpy)
NO_x	0.5	4.5	1.3
CO	0.3	1.2	2.0
VOC	0.04	0.3	6.4
SO_2	0.0001	0.0002	0.008
PM_{10}	2.0	4.5	0.1

Pollutant	Construction tons per year (tpy)	Development (tpy)	Operation (tpy)
$PM_{2.5}$	0.06	0.2	0.3
CO_2*	33.8	623.7	391.5
CH_4*	0.001	1.1	0.7
N_2O*	0.0003	0.04	0.001
GWP**	33.9	663.1	409.3
Benzene	0.00	0.00	0.06
Toluene	0.00	0.00	0.01
Ethylbenzene	0.00	0.00	0.0006
Xylene	0.00	0.00	0.004
n-Hexane	0.00	0.01	0.24

Emissions in Table 3 were calculated to include one producing oil well and associated operations traffic during a one year period. The emission estimate in the table 3 was calculated from an emission inventory developed for a shallow oil well (on the order of 5,000 feet deep) drilled in non-shale formations in the Denver Basin which was provided in **Air Emissions Inventory Estimates for a Representative Oil and Gas Well in the Western United States** which was authored by Kleinfelder West Incorporated and Environ International Corporation.

*Denotes a greenhouse gas

**Global Warming Potential (GWP) shown in Table 3 was calculated using a GWP of 1.0 for CO_2, 25 for CH_4, and 298 for N_2O.

Greenhouse Gases/Climate Change

If post-leasing development as described in the RFD occurs, GHG emissions of CO_2, CH_4, and N_2O would occur at the construction, development, and operations stages as demonstrated in Table 3 above. Table 3 also describes the GWP for construction, development, and operations stages. Construction and development phases would be temporary and short term resulting in GHG emissions of approximately 697 of CO_2 equivalent tons per year. If the well is to go into operation and produce oil consistently, the yearly emission of GHG gases would be approximately 409 of CO_2 equivalent tons. GHG emissions at the operations stages would be continuous until the well is plugged and abandoned.

Migratory Birds

Affected Environment – Migratory Birds

Migratory birds include species that spend the winter in the southern latitudes, and then fly north to nest, and fledge their young in the summer. Although some migrate from the Arctic Circle to the southern tip of South America, others only move from Idaho to Arizona (Groves, 1997).

In proximity of the lease sale area, a variety of habitat types exists: Inter-Mountain Basins Montane Sagebrush Steppe, Rocky Mountain Aspen Forest and Woodland, Inter-Mountain Basin Big Sagebrush Steppe, Northern Rocky Mountain Montane Grassland, Conifer Forest, Agriculture – Irrigated and Non-irrigated, Columbian Plateau Steppe and Grassland, Rocky Mountain Subalpine Mesic Meadow, Riparian, and Open Water habitats (USDOI USGS, U.S. Geological Survey, 2002). Moreover, the Gray's Lake National Wildlife Refuge, a mostly

wetland ecotone, is approximately 1.6 mile south of the southernmost proposed lease parcel. The diversity in habitats is likely reciprocal to the migratory bird abundance and species diversity in proximity of the proposed lease sale area.

Table 4 below displays a non-comprehensive list of migratory bird species on the Western DOI Bird Species of Conservation Concern list, the BLM Idaho Special Status Species list (BLM Instructional Bulletin No. ID-2016-003) (USDOI BLM, Idaho Instruction Bulletin No. ID-2016-003 (Update to the Idaho Bureau of Land Management Special Status Animal and Plant Lists), 2015) and those species of conservation priority found on the Idaho State Wildlife Action Plan that are likely to inhabit habitats in proximity of the proposed lease area. Resources utilized to verify key habitat types, seasonal occurrence, and rationale for occupancy include; Idaho Department of Fish and Game's Wildlife Information System, the draft Idaho State Wildlife Action Plan, Idaho Partners in Flight, and Nature Serve.

Table 4. List of Migratory Bird Species.

Migratory Bird Species	Habitat Required	Description of Use
Bald Eagle (*Haliaeetus leucocephalus)*	Assoc. w/aquatic habitats	Year-round, wintering
Black Rosy-finch (*Leucosticte atrata)*	Generalist, nest near or at timber/snowline	Year-round
Brewer's Sparrow (*Spizella breweri)*	Sagebrush dominated	Breeding
Calliope Hummingbird (*Stellula calliope*)	Mountain riparian/shrub	Breeding
Cassin's Finch (*Carpodacus cassinii*)	Coniferous and deciduous forests	Year-round
Clark's Grebe (*Aechmophorus clarkia*)	Wetlands	Breeding
Eared Grebe (*Podiceps nigricollis*)	Wetland	Breeding
Ferruginous Hawk (*Buteo regalis*)	Grass/shrublands, Pinyon juniper.,	Breeding
Fox Sparrow (*Passerella iliaca*)	Mountain riparian/shrub	Breeding
Flammulated Owl (*Psiloscops flammeolus*)	Forest	Breeding
Golden Eagle (*Aquila chrysaetos*)	Generalist. Grass/shrublands, and open coniferous forest	Year-round
Grasshopper Sparrow (Ammodramus savannarum)	Open grasslands	Breeding
Great Gray Owl (*Strix nebulosa*)	Forested – conifer/mixed	Year-round
Lesser Yellowlegs (*Tringa Flavipes*)	Wetlands, shorelines	Late breeding
Lewis's Woodpecker (*Melanerpes lewis*)	Mountain riparian	Breeding
Loggerhead Shrike (*Lanius ludovicianus*)	Generalist	Breeding
Long-billed Curlew (Numenius americanus)	Short grass, mixed prairie	Breeding
Northern Goshawk (*Accipiter gentilis*)	Forest	Year-round
Northern Harrier (*Circus cyaneus*)	Generalist	Breeding
Olive-sided Flycatcher (*Contopus cooperi*)	Open forests	Breeding
Peregrine Falcon (*Falco peregrinus*)	Generalist	Breeding
Pinyon Jay (*Gymnorhinus cyanocephalus*)	Pinyon juniper/Ponderosa pine	Year-round
Prairie Falcon (*Falco mexicanus*)	Generalist, open areas	Breeding
Rufous Hummingbird (*Selasphorus rufus*)	Shrublands to open woodlands	Breeding
Sage Sparrow (*Amphispiza belli*)	Big sagebrush shrublands	Breeding
Sage Thrasher (*Oreoscoptes montanus)*	Sagebrush	Breeding
Short-eared Owl (*Asio flammeus)*	Marshes, grasslands, shrub steppe	Year-round
Swainson's Hawk (*Buteo swainsoni)*	Savanah, open woodlands, generalist	Breeding
Trumpeters Swan (*Cygnus buccinator*)	Wetlands	Year-round

Migratory Bird Species	Habitat Required	Description of Use
Vaux's Swift (*Chaetura vauxi*)	Forest	Breeding
Vesper Sparrow (*Pooecetes gramineus*)	Grasslands, shurbland, cropland, generalist	Breeding
Virginias Warbler	Shrub/scrublands	Breeding
Western Grebe (*Amophorus occidenttalisech*)	Wetlands	Breeding
Willet (*Tringa semipalmata*)	Wetlands, shorelines	Breeding
Willow Flycatcher (*Empidonax trailli*)	Riparian	Breeding

Grasslands makeup the majority of the vegetation present in the southernmost and southeastern EOI tracts. These tracts could provide foraging and nesting habitat for migratory birds such as the long-billed Curlew and the grasshopper sparrow, however, the grasslands are largely managed as livestock pastureland.

Shrublands, primarily comprised of mountain sagebrush, make-up a large component of the vegetation present in the three northernmost semi-forested lease sale parcel tracts. These shrublands could provide seasonal habitat for shrub obligate/preferred migratory birds such as the sage thrasher or Brewer's sparrow. These shrubland and the forested edge zones likely provide habitat for both shrubland and forest obligate types such as the Rufous hummingbird, Olive-sided flycatcher, and the Cassin's finch. Forested stands are comprised primarily of aspen and mixed conifers, and likely provide the nesting substrate for many of the raptors that are likely to inhabit areas proximity to the lease sale area. Generalist species have the potential to occur across all habitat types present in proximity the lease sale area.

Although wetlands/riparian habitat exists within the lease sale parcel, buffers for perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals would be required for any post-lease actions, per stipulation 1 in Appendix 2 (Lease Stipulations and Notices. This requirement would reduce likelihood of deleterious effects to wetlands and associated obligate species. However, previously leased parcels that are developed in proximity of wetlands/riparian, would still pose a disturbance risk, as wetland species (e.g. Clark's/eared grebe, and various waterfowl) are known to inhabit the adjacent irrigation ditches, seasonally emergent wetlands, and the Gray's Lake National Wildlife Refuge.

Raptor species like the peregrine falcon (only raptor nest documented within the 4-mile buffer) are known to nest in proximity to the project area. However, numerous raptor species are known to utilize the area in proximity of the lease sale area for foraging activities, such as Golden Eagles, great gray owls, and northern harriers.

Environmental Consequences – Alternative A

Under this alternative, the parcels totaling approximately 836.23 acres would not be leased. There would be no subsequent environmental impacts from oil and/or gas construction, drilling, and production activities on migratory birds.

Environmental Consequences – Alternative B

Direct and indirect effects on migratory bird species cannot be determined until site-specific project proposals are analyzed at the APD stage of development. If the parcel is developed in the future, site-specific mitigation measures and best management practices would be attached as conditions of approval for each proposed activity, which would be analyzed under their own site-specific NEPA analysis.

In general, migratory birds are expected to avoid and move away from drilling activities. Assuming the RFD scenario under this alternative, direct impacts to migratory birds with suitable habitat in the project area would consist of 14 acres of habitat loss - potential foraging, escape, and breeding - during vegetation and growth media removal. Habitat losses would be temporary, until reclamation and eventual revegetation occur. Indirect impacts to migratory birds with suitable habitat in the lease sale area would consist of anthropogenic disturbance including but not limited to; structures, roads, elevated amount vehicular traffic, and the noise associated with vehicles, construction and drilling operations. Noise disturbance is known to reduce habitat suitability for a variety of avifauna, including migratory birds (Braun C.E., 2002).

The following stipulation would be applied for the entire lease nomination area: In order to protect migratory bird nesting within the lease area, surface disturbance and land clearing of vegetated habitat capable of supporting migratory bird nesting is restricted during avian breeding season (March 15 through August 15). Exceptions to the limitation in any year may be specifically authorized in writing by the Authorized Officer. See also Appendix 2 (Lease Stipulations and Notices).

Soil Resources

Affected Environment – Soil Resources

Information on soil unit descriptions for the project area was derived from the Natural Resource Conservation Service (NRCS) soil survey for the Bingham Area, Idaho, Caribou National Forest, Idaho and Wyoming, and Targhee National Forest, Idaho and Wyoming (NRCS, 2018). There are ten soil units in the EOI area. Table 5 lists the soil units within project area as well as provides a brief description of the soil unit. Appendix 4 depicts the locations of soil units that are present within the EOI area.

Table 5. Soil Unit Descriptions within Lease Nomination Area.

Soil Unit	Description	Acreage
DRF – Dranyon silt loam, hilly, 0 to 30 percent slopes	Well drained silt loam and clay loam occurring on mountain backslopes, footslopes, and toeslopes.	~ 243
DRG – Dranyon silt loam, steep, 30 to 60 percent slopes	Well drained silt loam and clayloam occurring on mountain backslopess and footslopes.	~ 71
NLF – Nielsen loam, hilly, extremely stony, 5 to 30	Well drained loam, very cobbly clay loam, and bedrock occurring on mountain footslopes. Parent material is colluvium over	~ 23

Soil Unit	Description	Acreage
percent slopes	bedrock derived from quartzite and/or sandstone.	
NLG – Nielsen Loam, steep, extremely stony, 30 to 60 percent slopes	Well drained loam, very cobbly clay loam, and bedrock occurring on footslopes. Parent material is colluvium over bedrock derived from quartzite and/or sandstone.	~ 93
Ot – Outlet silty clay loam, 0 to 4 percent slopes	Somewhat poorly drained silty clay loam, clay loam, and loam occurring on floodplains, fan remnants, and lakebeds. Parent material consists of mixed alluvium and/or lacustrine deposits. Soil unit occasionally exhibits flooding.	~ 73
SeD – Sessions silt loam, 4 to 12 percent slopes	Well drained silt loam and clay occurring on hillslope backslopes and footslopes. Parent material is loess and/or colluvium derived from sandstone.	~ 79
SeE – Sessions silt loam, 12 to 20 percent slopes	Well drained silt loam and clay occurring on hillslope backslopes and footslopes. Parent material is loess and/or colluvium derived from sandstone.	~ 43
SMF – Sessions silt loam, rolling, 0 to 25 percent slopes	Well drained silt loam and clay occurring on hillslope footslopes and backslopes. Patrent material is loess and/or colluvium derived from sandstone.	~ 98
SNF – Sessions-Nielsen complex, hilly, 0 to 30 percent slopes	Sessions consists of well drained silt loam and clay occurring on backslopes and footslopes of swales and hillslopes. Parent material is loess and/or colluvium derived from sandstone. Neilson Extremely Stony Surface consists of well drained loam, very cobbly clay loam, and bedrock occurring on ridges and hillslopes. Parent material is colluvium over bedrock derived from quartzite and/or sandstone and/or shale.	~ 107
SOG – Sheege very stony loam, steep, extremely stony (SOG), 30 to 60 percent slopes	Well drained very stony loam, very cobbly loam, and bedrock occurring on the backslopes and footslopes of mountain slopes and ridges. Parent material is loess and/or colluvium over bedrock derived from limestone.	~ 6

Differences in relief, aspect, slope, landform, elevation, and parent material contribute to the variability of represented soil types within the lease nomination area. Soils associated with the Outlet silty clay loam are poorly drained occasionally exhibiting flooding and occur at lower elevations of the lease nomination area within floodplains, fan deposits, and lakebeds. All other soil units within the lease nomination area occur at higher elevations on hillslopes, mountain slopes, and ridges and are well drained. There are no soils within the lease nomination area that exhibit extremely erodible or slumping characteristics (NRCS, 2018).

Environmental Consequences – Alternative A

Under this alternative, the parcel totaling approximately 836.23 acres would not be leased. There would be no subsequent environmental impacts related to post-leasing activities from oil and/or gas construction, drilling, and production activities to soil resources.

Environmental Consequences – Alternative B

Potential post-lease development could impact soils where access roads and well pads are developed. Under the RFD scenario, approximately 14 acres of disturbance to soils would occur. Within those areas compaction of soils, disruption of soil crusts, and reduced vegetation cover can lead to acceleration of surface water runoff and soil erosion. Upon disturbance, soils would

also be exposed to wind and water erosion. Any topsoil within the disturbed area would be stockpiled for future reclamation. The stockpile would be seeded to prevent any erosion of the stockpile. Should the well go into production, the access road would remain, however interim reclamation would be completed within portions of the well pad not needed for production activities. Upon abandonment of the well, the well pad and access road would be re-contoured and the stockpiled topsoil would be spread over the area and seeded.

Should post-leasing activities be proposed, impacts to soils would be analyzed under a site-specific NEPA document when well and access road locations as well as the area of disturbance is known. Through this process, specific mitigation measures and BMPs would be attached as COAs for each proposed activity.

To protect soils on steep slopes, the Pocatello RMP requires the following stipulation be applied to those portions of the lease nomination area: No occupancy or other surface disturbance will be allowed on slopes in excess of 30 percent or in excess of 20 percent on extremely erodible or slumping soils, without written approval of the Authorized Officer of the BLM. See also Appendix 2 (Lease Stipulations and Notices). Slopes greater than 20 percent occur within Section 7 - lot 3, NE¼SW¼, and N½SE¼; Section 8 - NE¼; Section 9 - E½; and Section 17 - E½NE¼ and NE¼SE¼ (see also Appendix 5).

Special Status Animals

Special Status migratory birds were discussed in the Migratory Bird section.

Affected Environment – Special Status Animals

Special Status Species are identified as those for which population viability in the region is a concern as indicated by current or predicted downward trends in population numbers, density, or habitat capability. Special Status Species receive special management emphasis to ensure their viability and to prevent the need for listing of the species as Threatened, Endangered, and Proposed Candidate Species. The BLM also recognizes Special Status Species as those that are range-wide or globally imperiled, regionally or state imperiled or peripheral species (species that are generally rare in Idaho, with the majority of their breeding range outside the state).

Type 1 Sensitive Species include federally listed threatened or endangered species and experimental essential populations. Based on review of information available on the USFWS IPaC website ((USFWS, 2018)), there is one known federally listed species (Type 1) with potential to occur in the lease sale area. Type 2 Sensitive Species include: Idaho BLM sensitive species, including USFWS proposed and candidate species, Endangered Species Act (ESA) species delisted during the past 5 years, and ESA experimental non-essential populations (USDOI BLM, 2015).

In 2014, the U.S. Fish and Wildlife Service withdrew a proposal to list the North American wolverine as Threatened in the contiguous U.S, however in 2016 the Service reopened the comment period for the proposed ruling (USFWS, 2014) (USFWS, 2016). The wolverine primarily occupies boreal forests, tundra, and mountains in western North America that are cold and receive enough snow to reliably maintain a snow pack late in the spring (Copeland, 2010). Although not directly identified as habitat for wolverine, the lease sale tracts within Sec 8 - NE¼ and Sec 9 - E½ provide mountainous forested habitat, somewhat contiguous with the largely undeveloped Forest Service managed lands to the north, and southwest of the lease sale area. Only one known observation of the species has been made within 10 miles of the project area.

Recently, January 12th of 2018, the USFWS issued a news release pertaining to a Canada Lynx status review, which contended that the lynx may no longer warrant protection under the ESA, and should be considered for delisting due to recovery. The Lynx, a currently ESA listed Threatened species, is typically associated with montane coniferous forests dominated by spruce and fir species. The lynx is a highly specialized predator of snowshoe hare and requires large, contiguous forest habitats that support snowshoe hare populations (USFWS, 2009). Although secondary habitat is identified for the species in proximity of the lease sale, only one known observation has been made within 10 miles of the lease sale area.

Both lynx and wolverine are known to require large home ranges, and actively avoid the human/urban interface. Although not densely populated, ongoing human activity is occurring in proximity of the lease sale area. Considering the following - limited expected occupancy by either species (lynx or wolverine), the amount of human development an ongoing disturbance in proximity of the lease sale area, and the abundance of adjacent undisturbed habitat with greater habitat suitability – the lease sale and subsequent development would be expected to negligibly impact either species or their habitats'.

As previously stated in the migratory bird section, in proximity of the lease sale area a variety of habitats exist. The diversity in habitats is likely reciprocal to the special status species abundance and diversity in proximity of the proposed well sites. Table 6 displays a non-comprehensive list of special status animal species on the BLM Idaho Special Status Species list (BLM Instructional Bulletin No. ID-2016-003) and those species of conservation priority found on the Idaho State Wildlife Action Plan that are likely to inhabit habitats in proximity of the proposed lease area.

Table 6. List of Special Status animals and their expected habitat associations.

Special Status Animal Species	Forested	Sagebrush	Grassland	Riparian/Wetland
Columbian Sharp-tailed Grouse (*Tympanuchus phasianellus)*		X	X	X
Gray Wolf (*Canis lupus)*	X	X		X
Greater Sage Grouse (*Centrocercus urophasianus*)		X		X

Special Status Animal Species	Forested	Sagebrush	Grassland	Riparian/Wetland
Hoary Bat (Lasiurus cinereus)	X			X
Long-eared Myotis (*Myotis evotis*)	X	X		X
Long-legged Myotis (*Myotis volans*)	X		X	X
Little Brown Myotis (Myotis lucifugus)	X	X	X	X
Northern Leopard Frog (Lithobates pipiens)				X
Pallid Bat (*Antrozous pallidus*)		X	X	X
Pygmy Rabbit (Brachylagus idahoensis)		X		
Silver-haired Bat (Lasionycteris noctivagans)	X	X		X
Townsend's Big-eared Bat (Corynorhinus townsendii)	X	X		X
Western Small-footed Myotis (*Myotis ciliolabrum*)	X			X
Western Toad (Anaxyrus boreas)				X

The entirety of the lease sale parcel is located within identified General Habitat Management Area (GHMA) for Greater sage-grouse as delineated in the 2015 GRSG ARMPA (see also Appendix 6). The closest known occupied sage-grouse lek is located approximately 5.1 miles west of the westernmost lease sale parcel. The Columbian Sharp-tailed grouse, a sympatric species to the sage-grouse, also breeds (leks) in proximity, albeit only Sharp-tail grouse leks of undetermined status occur within 15 miles of the lease sale. Grasslands like those that primarily comprise the southernmost two lease parcels could provide foraging and nesting habitat for Columbian Sharp-tailed grouse, whereas, shrubland obligate/preferred species like the Greater Sage-grouse would be expected to occur incidentally or in low densities. Even in the sagebrush dominated portions of the three northernmost parcels would be considered marginal habitat for sage grouse due to the proximity of forested habitats. Sagebrush habitat may also provide habitat for pygmy rabbits, although no occurrences have been documented in proximity of the lease sale.

Forested stands located in the northernmost parcels likely provide habitat for a variety of special status bats (e.g. silver-haired bat, hoary bat, long legged/eared myotis) for roosting substrate and foraging opportunity. Many of the bats mentioned in Table 6 will utilize a variety of habitat types, including the airspace above all the lease parcels for foraging habitat. Increased bat abundance and diversity is expected in proximity of riparian/wetlands, where bats drink and forage on congregated insects. The gray wolf may use the well sites and their proximity incidentally, although unlikely, as the species is known to have a large home range and likely avoids the area due to the abundance of anthropogenic disturbance, especially considering little concealing [forested or tall shrub] cover available in the southern parcels.

Buffers for perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals would be required for any post-lease actions, per stipulation 1 in Appendix 2 (Lease Stipulations and Notices). This requirement would reduce likelihood of deleterious effects to wetlands and associated obligate species. However, previously leased parcels that are developed in proximity of wetlands/riparian, would still pose a disturbance risk (vibration/noise), as wetland species (e.g.

western toad and the northern leopard frog) are known to inhabit the adjacent irrigation ditches, seasonally emergent wetlands, and the Gray's Lake National Wildlife Refuge.

Environmental Consequences – Alternative A

Under this alternative, the parcels totaling approximately 836.23 acres would not be leased. There would be no subsequent environmental impacts from oil and/or gas construction, drilling, and production activities on special status animals.

Environmental Consequences – Alternative B

Direct and indirect effects on special status animals cannot be determined until site specific project proposals are analyzed at the APD stage of development. If parcels are developed in the future, site-specific mitigation measures and best management practices would be attached as conditions of approval for each proposed activity, which would be analyzed under their own site-specific NEPA analysis.

To reduce potential impacts to lynx seasonal habitat within Sec 8 - NE¼ and Section 9 - E½ which contain mountainous forested habitat, the Pocatello RMP requires the following stipulation be applied to those portions of the lease nomination area: In order to protect seasonal lynx habitat, exploration drilling and other development activity will be restrict during the period from December 1 to February 28. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by the Authorized Officer of the BLM.

In addition the following stipulation applies to all the lands within the lease:

ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. 1531 et seq., including completion of any required procedure for conference or consultation.

In general, special status animals are expected to avoid and move away from oil drilling activities. Assuming the RFD scenario under this alternative, direct impacts to special status

animals with suitable habitat in the project area would consist of 14 acres of habitat loss - potential foraging, escape, and breeding - during vegetation and growth media removal. Indirect impacts to special status animals with suitable habitat in the lease sale area would consist of anthropogenic disturbance including but not limited to; structures, roads, elevated amount vehicular traffic, and the noise associated with vehicles, construction and drilling operations. Habitat losses would be temporary, until reclamation and eventual revegetation occur.

Should post-leasing development occur, a lessee would be required to meet the objectives of 2015 GRSG ARMPA which includes COAs specific to Greater sage-grouse GHMA be imposed on exploration and other development activities within the entire lease area on a case-by-case basis in accordance with the ARMPA management decisions, buffers, seasonal restrictions, and required design features (RDFs). Appendix 2 (Lease Stipulations and Notices) contains lease information which conveys certain requirements relative to lease management within the terms and conditions of the standard lease form and includes buffer distances to Great Sage-grouse leks, reduction of noise disturbance impacts during Greater sage-grouse brood-rearing seasons, and reclamation standards. Should post-leasing development occur a 4th Order habitat assessment would be conducted at where disturbance is proposed, in accordance with BLM Technical Reference 6701-1 (Stiver, 2015). The assessment would determine current habitat suitability for the Greater sage-grouse, and subsequent mitigation requirements for disturbance.

Vegetation Resources

Affected Environment – Vegetation Resources

The vegetation within the parcel is composed of four distinct ecological site descriptions; Dry Meadow PONE-PHAL2 (73 acres), Loamy 16-22" ARTRV/FEID-PSSPS (319 acres), Steep Stony North 16-22" ARTRV/FEID (6 acres), and Stony Loam 16-22" ARTRV/PSSPS (116 acres), and approximately 297 acres of undefined ecological descriptions. This undefined portion of the parcel appears to correspond to aspen/mixed timber stands. Ecological Site Descriptions provide "descriptions of the soils, uses, and potential of a kind of land with specific physiological characteristics to produce distinctive kinds and amounts of vegetation (Pellant, 2005).

The Dry Meadow PONE-PHAL2 site at potential is dominated by Nevada bluegrass, alpine timothy, and meadow barley with limited shrub cover (NRCS R013XY39ID draft). Site potential within the Loamy 16-22" ARTRV/FEID-PSSPS, the Steep Stony North 16-22" ARTRV/FEID, and the Stony Loam 16-22" ARTRV/PSSPS ecological sites consists of mountain big sagebrush and bunchgrasses, predominantly bluebunch wheatgrass and Idaho fescue (NRCS R013XY005ID draft, NRCS R013XY031ID draft, NRCS R013XY019ID draft).

Environmental Consequences – Alternative A

Under this alternative, the parcel totaling approximately 836.23 acres would not be leased. There would be no subsequent environmental impacts related to post-leasing activities from oil and/or gas construction, drilling, and production activities to vegetation resources.

Environmental Consequences – Alternative B

Potential post-lease development could impact vegetation where access roads and well pads are developed. Under the RFD scenario, approximately 14 acres of disturbance to vegetation would occur. Creation of access roads and well pads would remove vegetative cover during the operation of the well. Areas not necessary for production and future workovers would be reshaped to resemble the original landscape contour. Stockpiled topsoil would be redistributed and disked on the area to be reclaimed and re-seeded. Upon abandonment of the well, the well pad and access road would be contoured and the stockpiled topsoil would be spread over the area and seeded with a mix approved by the surface owner.

Should post-leasing activities occur, impacts to vegetation would be analyzed under a site-specific NEPA document when an action is proposed and well and access road locations as well as the area of disturbance is known. Through this process, specific mitigation measures and BMPs would be attached as COAs for each proposed activity.

Water Quality

Affected Environmental – Water Quality

Surface Water Quality

The lands nominated for competitive oil and gas leasing occur within the Willow Creek Sub basin (HUC 17040205). The Willow Creek Sub basin is approximately 693 square miles in size. Streams within the vicinity of the nominated parcel consist of numerous intermittent and perennial streams which are derived from precipitation, snowmelt, and springs emanating from the west slope of the Caribou Range (IDEQ, 2004).

Information regarding stream segments, pollutants, and water quality status of streams can be found in IDEQ's 2014 Final Integrated Report. The report categorizes water quality on stream segments, and lists segments with impaired water quality as defined by the Clean Water Act (denoted as Section 303(d) segments). Stream segments that occur within the nominated parcel have impaired water quality as defined by section 303(d) of the Clean Water Act. The report indicates that first and second order tributaries of Grays Lake are impaired by biota/habitat bioassessments (IDEQ, 2017). The first and second order tributaries of Grays Lake do not have surface water beneficial use designations which are assigned by the IDEQ (IDEQ, 2014).

Regardless of designation status, IDEQ will apply cold water aquatic life and primary or secondary contact recreation criteria to all waters.

Groundwater Quality

Domestic and livestock watering ground water wells are located within the vicinity of the lease nomination area. One domestic well is present on lands within the lease nomination area and occurs within Township 3 South, Range 43 East, Boise Meridian, SESE of Section 9. The well was drilled to a total depth of 40 feet and was completed on February 26, 2002. Groundwater in the well was encountered at a depth of 18 feet (IDWR, 2018).

Environmental Consequences – Alternative A

Under this alternative, the parcel totaling approximately 836.23 acres would not be leased. There would be no subsequent environmental impacts related to post-leasing activities from oil and/or gas construction, drilling, and production activities to surface water or groundwater quality.

Environmental Consequences – Alternative B

Surface Water Quality

Post-lease development described in the RFD could result in approximately 14 acres of disturbance where access roads and well pads are developed. Within those areas compaction of soils, disruption of soil crusts, and reduced vegetation cover can lead to acceleration of surface water runoff and soil erosion. Drilling activities and completion operations may necessitate water to be pumped from surface water within the vicinity of the lease. However, water appropriation would be required by the Idaho Department of Water Resources prior to withdrawal of water from any diversion location. Well drilling produces small volumes of formation water and drill cuttings that could potentially impact nearby surface waters if left unmitigated.

Should post-leasing activities occur, impacts to surface water quality would be analyzed under a site-specific NEPA document when an action is proposed and well and access road locations as well as area of disturbance is known. Through this process, specific mitigation measures and BMPs for protection of surface water would be attached as COAs for each proposed activity.

Stream segments involved with Clark Creek first and second order tributaries occur within Sec 7 - N½SE¼; Sec 9 - E½; Sec 17 - E½E½; Sec 18 - SE¼SE¼ (see also Appendix 6). To protect surface water resources, the Pocatello RMP requires the following lease stipulation be applied those portions of the lease nomination area: for the purpose of preventing watershed damage no occupancy or other surface disturbance will be allowed within 500 feet of perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals. This distance may be modified

when specifically approved in writing by the Authorized Officer of the Bureau of Land Management.

Groundwater Quality

Post-leasing development described in the RFD would involve the drilling of one well resulting in drilling that would likely encounter freshwater at shallow depths. No impacts to groundwater are anticipated from drilling as engineering controls in the drilling plan and regulatory requirements provide for the protection of groundwater. Federal Onshore Oil and Gas Order Number Two requires that drilling plans provide specific provisions for performance, well bore/completion design and construction, operations, and surface use to protect/isolate useable ground water zones.

Once the well has been drilled and if it is determined that sufficient oil and/or natural gas can be produced from the well, completion activities would be conducted. It is possible that these activities would include hydraulic fracturing (fracking) of the target formation. Fracking has generated concern about contaminating groundwater. In December 2016, the Environmental Protection Agency (EPA) released the final report, "*Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources*." EPA found that hydraulic fracturing activities can impact drinking water resources under some circumstances.

All fracking operations would be subject to prior approval by the Idaho Department of Lands and to the requirements of the IDAPA 20.07.02, entitled "Rules Governing the Conservation of Oil and Natural Gas in the State of Idaho." These rules require the applicant to submit a fresh water protection plan; ground water and storm water best management practices; and certification by the owner/operator that all aspects of the well construction are designed to meet the requirements of the proposed well treatments. They also require reporting of detailed information on the stimulation fluid(s) and limits on volatile organic and BTEX (benzene, toluene, ethylbenzene, and xylenes) compounds and petroleum distillates. Well integrity tests are required prior to stimulation, and pressure monitoring is required during stimulation. Additional requirements for reporting hydraulic fracturing activities must be included in the post-treatment report to the Idaho Department of Lands (IDL).

Should post-leasing activities be proposed, impacts to groundwater resources would be analyzed under a site-specific NEPA document when addition information such as the well location, location and type of water supply, and method of handling drilling fluids and produced water are known. Standard BMPs and COAs would include the use of lined pits with secondary containment and monitoring features for any flow-back or produced fluids which are designed to prevent any infiltration or other contamination of groundwater or surface water resources.

Potential geologic hazards caused by hydraulic fracturing may include induced seismic activity. Earthquakes occur when energy is released due to blocks of the earth's crust moving along areas

of weakness or faults. Earthquakes attributable to human activities are called "induced seismic events" or "induced earthquakes." A study conducted by the National Research Council (2013) studied the issue of induced seismic activity from energy development. The study found that: 1) the process of hydraulic fracturing a well as presently implemented for shale gas recovery does not pose a high risk for inducing felt seismic events; and, 2) injection for disposal of waste water derived from energy technologies into the subsurface does pose some risk for induced seismicity, but very few events have been documented over the past several decades relative to the large number of disposal wells in operation (National Research Council, 2013). A well drilled on a federal oil and gas lease on split estate lands cannot be used for injection, since injection is not considered to be development of the mineral estate.

CHAPTER 4 – CUMULATIVE EFFECTS OF ALTERNATIVES

This section of the document discloses the possible incremental impacts of the BLM offering the parcel for lease, when considered in the context of impacts associated with past, present and reasonably foreseeable future actions that have occurred, or are likely to occur, in the area.

The Cumulative Impact Assessment Area (CIAA) for this analysis is the Outlet Grays Lake Watershed (HUC 1704020502) ten digit hydrologic unit. The CIAA is approximately 132,423 acres in size which consists of 69,660 acres of privately owned lands, 41,180 acres of lands managed by the Idaho Department of Lands (IDL), 14,096 acres of lands managed by the United States Forest Service (USFS), 4463 acres of lands managed by the BLM, 1848 acres of lands managed by the US Fish and Wildlife Service, 850 acres of lands managed by the Bureau of Indian Affairs, and 326 acres of surface water. For the resources affected by the Proposed Action and alternatives, this CIAA is the landscape unit that defines the bounds of the cumulative analysis. Appendix 8 demonstrates the area of the CIAA.

Past, present, and reasonably foreseeable actions that have impacted the CIAA to varying degrees. Although these actions probably do not account for all of the actions that have or are likely to occur in the CIAA, GIS analysis, agency records, and professional judgment suggest that they have contributed to the vast majority of cumulative impacts that have occurred in the CIAA.

Past and Present Actions

On the basis of aerial photographic data, agency records and GIS analysis, the following past, present and reasonably foreseeable actions, which have impacted the CIAA to varying degrees, have been identified as: oil and gas exploration and development, salable mineral development, agricultural development, livestock grazing, and recreational use. These actions do not represent every action that may have had impacts in the CIAA, but they are the suite of actions most likely to have resulted in substantial impacts based on the aerial photographic and GIS analysis.

Oil and Gas Exploration and Development

CPC Mineral LLC drilled the CPC 17-1 oil and gas well within Township 3 South, Range 43 East, Boise Meridian, NWSW of Section 17 on private surface with private mineral estate. The well was drilled in the fall of 2007 and was plugged and abandoned following completion. Approximately 3.7 acres of disturbance can be attributed to development of the well pad and access road. The footprint of the pad and access road for the CPC 17-1 well remains however natural revegetation has occurred. The company also drilled the Federal 20-3 Well in the fall of 2017 within Township 3 South, Range 43 East, Boise Meridian, S½SE¼NW¼ and NE¼SW¼ of Section 20. The site involved private surface with federal mineral estate within Federal Oil and Gas Lease IDI-35687. The well was plugged and abandoned following drilling activities. Approximately 3.7 acres were disturbed by the access road and well pad for the Federal 20-3 Well. The site is planned to be reclaimed in the spring of 2018.

Salable Mineral Development

Two cinder pits occurs on privately owned property within the CIAA. The pits cinder sources occur within Township 3 South, Range 42 East, Boise Meridian, SESW of Section 13 and NWNW of Section 21. Material from the pits are utilized for use on local roadways. Approximately 23 acres of disturbance has resulted from pit development.

Agricultural Development

Past cultivation of crops within the CIAA has produced crops such as barley, wheat, and hay. US Department of Agriculture 2017 imagery indicates that agricultural development has occurred on approximately 5136 acres of privately owned lands and approximately 548 acres of USFWS lands within the CIAA. Agricultural activity on lands managed by the USFWS consists of manipulating vegetation by hay cutting to create feeding and nesting sites for a variety of bird species (USFWS, Grays Lake National Wildlife Refuge, 2018).

Livestock Grazing

Livestock grazing in southeastern Idaho dates back to the settlement and agricultural development of the area in the late 1800s. Farmers brought livestock with them to raise for food and sell at the market. Both cattle and sheep are run within the CIAA; however cattle make up the majority of use with the typical season being May to September. Livestock grazing within the CIAA occurs on private, state, and federally administered lands (BLM, BIA, USFWS and USFS). Approximately 126,961 acres are utilized for livestock grazing within the CIAA. Cattle grazing occurring on lands managed by the USFWS are utilized for vegetation manipulation to create feeding and nesting sites for a variety of bird species.

Recreation Use

Recreational use within the CIAA is generally dispersed and includes activities such as OHV use, snowmobiling, camping, big game and upland bird hunting, fishing, photography, birding, wildlife viewing, hiking, sightseeing, horseback riding and cross-country skiing.

Reasonably Foreseeable Actions

All of the past and present actions discussed above are expected to continue into the future though the relative intensity of these actions could vary depending on a variety of economic factors, climate, or changes in management direction.

Oil and Gas Exploration and Development

Federal Oil and Gas Lease IDI-35687 occurs within the CIAA however there are no pending applications for permit to drill for oil and gas resources within the lease. Other than reclamation, no further activity is planned at the Federal 20-3 well site as the well is plugged and abandoned.

Salable Mineral Development

Salable mineral development within the cinder pit occurring on privately owned property within the CIAA is likely to remain within previous disturbance in the reasonably foreseeable future.

Agricultural Development

Agricultural activities on privately owned and USFWS within the CIAA are likely to remain consistent in the reasonably foreseeable future.

Livestock Grazing

Current livestock grazing practices within the CIAA are anticipated to remain consistent into the future. It is likely that there could be modifications to grazing management and construction of range improvements due to changing resource conditions or changes in a land owner or permittee's operation.

Recreation Use

It is reasonably foreseeable that recreation use within the CIAA would increase slightly in the future due to growing human population growth.

Cumulative Impacts of the No Action Alternative and Proposed Action Alternatives

Table 7 demonstrates the effects of the No Action and Proposed Action Alternatives in combination with past, present, and reasonably foreseeable future actions occurring in the CIAA.

Table 7. Cumulative Impacts Associated with Past, Present and Reasonably Foreseeable Future Actions by Affected Resource.

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
Air Quality	Past and present oil and gas development at the 17-1 and Federal 20-3 wells temporarily impacted air quality within the CIAA when drilling operations were occurring. Construction and drilling phases likely produced pollutants such as oxides of nitrogen (NO_x), CO, VOCs, and SO_2 as well as GHG emissions of CO_2, CH_4, and N_2O. Fugitive dust (PM_{10} and $PM_{2.5}$) was produced from vehicles, construction equipment, and wind erosion on disturbed surfaces. Impacts to air quality during the construction and drilling phases were temporary and short term. Salable mineral development within the CIAA has impacted air quality by creating fugitive dust while operating equipment and releasing CO_2 and N_2O emissions from combustion engines. Agricultural development within the CIAA has impacted air quality by operating equipment and releasing CO_2 and N_2O emissions from combustion engines. Exposed soils have been susceptible to wind erosion creating fugitive dust. Livestock grazing has resulted in a reduction in vegetative cover exposing soils to wind erosion creating fugitive dust. These impacts are more commonly associated around trough locations and salting grounds which	Continued salable mineral development within the CIAA would affect air quality by creating fugitive dust while operating equipment and releasing CO_2 and N_2O emissions from combustion engines. Agricultural development within the CIAA would continue to affect air quality by operating equipment and releasing CO_2 and N_2O emissions from combustion engines. Exposed soils have been susceptible to wind erosion creating fugitive dust. Continued livestock grazing within the CIAA would continue to result in localized fugitive dust where livestock are present. Impacts from livestock would remain to be localized to trough locations and salting grounds. Continued recreational use within the CIAA is expected to create minor impacts to air quality. Continued motorized vehicle use would cause fugitive dust and create CO_2 and N_2O emissions from internal combustion engines. Reasonable foreseeable activities within the CIAA are not expected to exceed NAAQS set by EPA.	The No Action Alternative in combination with past, present, and reasonably foreseeable future actions would not change the current air quality conditions. Agricultural development, livestock grazing, and recreational uses would continue within the CIAA impacting impact air quality and contribute GHG emissions.	The RFD scenario analyzed as part of the Proposed Action Alternative in combination with past, present, and reasonably foreseeable future actions within the CIAA are not expected to exceed NAAQS set by EPA and would contribute very little to the total United States GHG emissions.

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
	comprise relatively few acres within the CIAA. Recreational use within the CIAA has the potential to affect air quality. Motorized vehicle use causes fugitive dust and creates CO_2 and N_2O emissions from internal combustion engines. All activities within the CIAA have not exceeded NAAQS set by EPA.			
Wildlife Resources including Migratory Birds, Special Status Animals	Past and present oil and gas exploration and salable mineral pits have minimally affected wildlife resources within the CIAA. Development of saleable mineral pits, drill pads and access roads has removed native vegetation, and therefore reduced the amount and quality of habitat available to wildlife. Cumulatively, roughly 30 acres of disturbance has occurred within the CIAA due to minerals development. This impact is small in area and relatively short term, and the areas are reclaimed following the projects and seeded with perennial vegetation. Past and present agricultural development activity has resulted in the eradication and removal of the native vegetation and the substitution of non-native, agricultural vegetative species within 5684 acres of the CIAA. Livestock grazing has resulted in a reduction of vegetative cover and a shift in vegetative community composition. Change in vegetative cover and species composition has impacted wildlife distribution, abundance and diversity. The negative impacts are more	Reasonable foreseeable oil and gas development within the CIAA is expected to only include those actions and environmental consequences disclosed in this EA. Salable mineral development and associated impacts to wildlife resources would be negligible in the foreseeable future. Agricultural activity within the CIAA would continue within approximately 5684 acres. Within those areas native vegetation would continue to be converted into agricultural based vegetative species. Livestock grazing within the CIAA would continue to reduce vegetative cover primarily within those areas associated with troughs and salting locations. Continued or increased recreational use, including motorized activity on routes and trails, within the CIAA would continue to reduce wildlife	The No Action Alternative in combination with past, present, and reasonably foreseeable future actions would not change the current condition of wildlife resources within the CIAA. Livestock grazing, salable minerals, and recreational uses would continue within the CIAA and impact wildlife.	Disturbance and fragmentation of wildlife habitat may impact wildlife species by displacement or temporarily and permanently altering habitat. Habitat loss and displacement can have negative impacts on wildlife populations. However, the reasonably foreseeable impacts of oil and gas exploration and development within the assessment area is negligible if potential impacts are effectively minimized through site-specific best management practices and mitigation measures. In addition, several tracts were identified for timing restriction that contain important habitat for SSS wildlife. The proposed action will contribute very little to the impacts of past, present, and

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
	commonly associated with livestock congregation locations, like troughs and salting locations, which comprise relatively few acres within the CIAA. Recreational use within the CIAA has resulted in the reduction of habitat quality for wildlife resources. Fragmentation of habitat due anthropogenic disturbance, and the removal of vegetative cover have degraded wildlife habitat in locations where density of recreational use is elevated. However, the majority of recreational activity within the CIAA is dispersed.	habitat quality by habitat fragmentation, and vegetative impacts.		reasonably foreseeable future actions. Impacts to wildlife resources would be localized to the project area and would account for approximately 14 acres (approximately 0.0001% of the CIAA) of new disturbance to potential wildlife habitat within the CIAA.
Soil Resources	Past and present oil and gas development at the 17-1 and Federal 20-3 wells have impacted soils within 7.4 acres of the CIAA. Development has resulted in removal of native vegetation thus making soils susceptible to wind and water erosion. Soil compaction has also occurred around the well pads and access routes resulting in increased surface water runoff and erosion in disturbed areas. Natural revegetation and reclamation activities within the area of the well pad and access road for the 17-1 well have reduced the potential for soil erosion. The well pad and access road for the Federal 20-3 Well have yet to be reclaimed however, BMPs have been implemented to reduce soil loss and erosion. BMPs included minimizing the disturbed area and protecting natural features and soil, applying water to dry exposed soils, controlling storm water flowing into and through the site, stabilizing soils, protecting slopes, establishing perimeter controls and barriers, and retaining sediment onsite.	Impacts to soils associated from salable mineral development would continue within 14 acres of previous disturbance. Within that area exposed soils would continue to be susceptible to wind and water erosion. Agricultural activity within the CIAA would continue within approximately 5684 acres. Within those areas soils would continue to be susceptible to wind and water erosion. Livestock grazing within the CIAA would continue to reduce vegetative cover and increase soil compaction. Continued recreational use on motorized routes and trails within the CIAA would contribute to compaction of soils, increased precipitation runoff, and erosion of travel surfaces.	The No Action Alternative in combination with past, present, and reasonably foreseeable future actions would not change the current condition of soil resources within the CIAA. Salable mineral development, agricultural development, livestock grazing, and recreational uses would continue to occur within the CIAA and impact soil resources.	The Proposed Action Alternative in combination with past, present, and reasonably foreseeable future actions would contribute very little to the impact to soils. Impacts to soil resources would be localized to a well pad and access road with the lease nomination area and would account for approximately 14 acres (approximately 0.0001% of the CIAA) of new disturbance to soil resources within the CIAA.

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
	Salable mineral development on private property has resulted in approximately 23 acres of soil disturbance within the CIAA. Removal of native vegetation within the pit area has made soils susceptible to wind and water erosion. Soil compaction has also occurred on access roads to the pit area which leads to increased surface water runoff. Past and present agricultural development activity has resulted in the eradication and removal of the native vegetation, thereby exposing soil to wind and water erosion within 5684 acres of the CIAA. Livestock grazing has resulted in a reduction in vegetative cover exposing soils and increase in compaction reducing the infiltration of water, making soils susceptible to wind and water erosion. These impacts are more common associated around trough locations and salting grounds which comprise relatively few acres within the CIAA. Recreational use of routes and trails within the CIAA has resulted in disturbance to native vegetation and compaction of soils, thus decreasing infiltration of precipitation runoff and increasing erosion of travel surfaces. Impacts to soils within the CIAA comprise of relatively few acres.			
Vegetation Resources	Past and present oil and gas development at the 17-1 and Federal 20-3 wells have impacted soils within 7.4 acres of the CIAA. Development has resulted in removal of	Impacts to soils associated from salable mineral development would continue within 14 acres of previous disturbance. Within that area	The No Action Alternative in combination with past, present, and reasonably foreseeable future actions	The Proposed Action Alternative in combination with past, present, and reasonably foreseeable future

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
	native vegetation. Natural revegetation and reclamation activities within the area of the well pad and access road for the 17-1 well have occurred. The well pad and access road for the Federal 20-3 Well have yet to be reclaimed however, BMPs have been implemented re-establish vegetation. BMPs included contouring and spreading of topsoil over the area to be seeded, seeding of the area utilizing a seed mixture determined by the surface owner. Salable mineral development on private property has resulted in approximately 23 acres of vegetation removal within the CIAA. Past and present agricultural development activity has resulted in the eradication and removal of the native vegetation and the substitution of non-native, agricultural vegetative species within 5684 acres of the CIAA. Livestock grazing has resulted in a reduction in vegetative cover. These impacts are more common near trough locations and salting grounds which comprise relatively few acres within the CIAA. Recreational use of routes and trails within the CIAA has resulted in disturbance to native vegetation. Impacts to vegetation within the CIAA comprise of relatively few acres.	vegetation would continue to be absent within active sites and would revegetate naturally within non-active sites. Agricultural activity within the CIAA would continue within approximately 5684 acres. Within those areas native vegetation would continue to be converted into agricultural based vegetative species. Livestock grazing within the CIAA would continue to reduce vegetative cover primarily within those areas associated with troughs and salting locations. Continued recreational use on motorized routes and trails within the CIAA would contribute to reduced vegetative cover within the localized footprint of roads and/or trails.	would not change the current condition of vegetative resources within the CIAA. Salable mineral development, agricultural development, livestock grazing, and recreational uses would continue to occur within the CIAA and impact vegetative resources.	actions would contribute very little to the impact to vegetation. Impacts to vegetative resources would be localized to a well pad and access road with the lease nomination area and would account for approximately 14 acres (approximately 0.0001% of the CIAA) of new disturbance to vegetative resources within the CIAA.
Water Quality	Past and present oil and gas development at the 17-1 and Federal 20-3 wells disturbed approximately 7.4 acres within the CIAA.	Impacts to water quality from salable mineral development would likely continue within the reasonable	The No Action Alternative in combination with past, present, and reasonably	The proposed action will contribute very little to the impacts to water quality in

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
	Development has resulted in removal of vegetation, compaction of soils, and decreased infiltration rates thus increasing the potential for precipitation runoff and soil erosion in disturbed areas. There are no known impacts from sedimentation to streams or aquatic habitats within the vicinity of the well. Natural revegetation and reclamation activities within the area of the well pad and access road for the 17-1 well have reduced the potential for runoff and soil erosion. The well pad and access road for the Federal 20-3 Well have yet to be reclaimed however, BMPs have been implemented to reduce soil loss, erosion, and retaining sediment and storm water onsite. Groundwater was encountered during drilling of both the 17-1 and Federal 20-3 wells however there were known impacts to ground water quality. Both wells have been plugged and abandoned to regulatory standards. Salable mineral development on private property has resulted in approximately 23 acres of disturbance within the CIAA. Removal of native vegetation within the pit area has made soils susceptible to wind and water erosion. Soil compaction has also occurred on access roads to the pit area which increases surface water runoff. In these areas surface water runoff events have likely carried sediment within and outside of disturbed areas. There are no known impacts to streams or aquatic habitats within the vicinity of the pit from sedimentation.	foreseeable future. Within that area, it is likely that surface water runoff events would continue to carry sediment within and outside of disturbed areas. Ongoing agricultural activity within the CIAA would continue to contribute to soil erosion and sedimentation in areas where natural vegetation communities have been removed. Streams and aquatic habitats in close proximity to developed areas would be susceptible to fertilizers and chemicals carried by surface water runoff. Livestock grazing within the CIAA would continue to reduce vegetative cover and increase soil compaction. Streams and aquatic habitats would continue to be susceptible to sediment input and stream turbidity. Continued recreational use on motorized trails within the CIAA would increase compaction of soils thus increasing the potential for erosion of travel surfaces as well as surface water runoff which could input sediment into aquatic habitats.	foreseeable future actions would not change the current condition of surface and groundwater quality within the CIAA. Salable mineral development, agricultural development, livestock grazing, and recreational uses would continue to occur within the CIAA and impact water quality.	combination with past, present, and reasonably foreseeable future actions. Impacts to surface water quality would be localized to disturbance associated with the well pads and access roads and would account for approximately 14 acres (approximately 0.0001% of the CIAA). Impacts to groundwater quality are not anticipated as regulatory requirements provide for the protection of groundwater.

Resource	Impacts of Past and Present Action Actions	Impacts of Reasonable Foreseeable Actions	Cumulative Impacts of the No Action Alternative	Cumulative Impacts of Proposed Action Alternative
	Past and present agricultural activities have contributed to soil erosion and sedimentation in areas where natural vegetation communities have been removed. Streams and aquatic habitats in close proximity to developed areas are also susceptible to fertilizers and chemicals carried by surface water runoff. Past and present livestock grazing has resulted in a reduction in vegetative cover and compaction of soils increasing the potential for soil erosion, surface water runoff, and sedimentation into aquatic habits. Recreational use of routes and trails within the CIAA has resulted in disturbance to native vegetation and compaction of soils, thus decreasing infiltration of precipitation runoff and increasing erosion of travel surfaces. Sediment and pollutants transported in surface water runoff has the potential to enter aquatic habitats.			

CHAPTER 5 - CONSULTATION AND COORDINATION

Persons and Agencies Consulted

List of Preparers

Section of EA (this list may change depending on whether or not it is included in the EA)	Specialist (who wrote the section of the EA)
Geology/Minerals/Soils/Air Quality/Floodplains/Water Quality	Bryce Anderson
Cultural Resources/Native American Religious Concerns/Indian Trust Resources/Tribal Treaty Rights	Amy Lapp
Vegetation/Botany/TES Plants	Karen Kraus
Wildlife	David Price

(Preparer) Date (NEPA Reviewer) Date

CHAPTER 6 – REFERENCES

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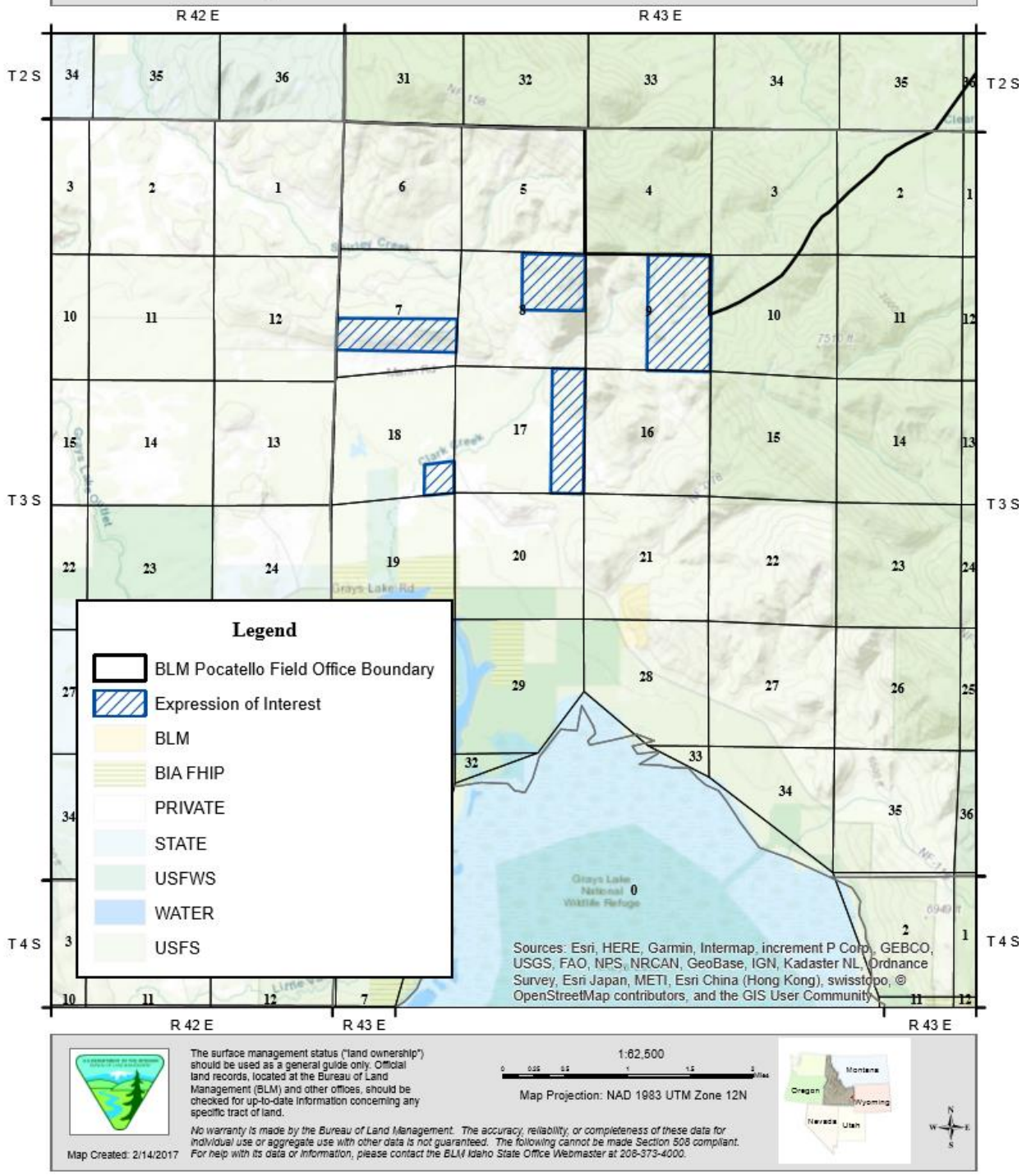
Appendix 1. Lands Nominated for Competitive Oil and Gas Lease Sale.



Appendix 2. Lease Stipulations and Notices.

IDI-38711

Boise Meridian, Idaho
T. 3 S., R. 43 E.,
sec. 7, lot 3, NE¼SW¼, and N½SE¼;
sec. 8, NE¼;
sec. 9, E½;
sec. 17, E½E½;
sec. 18, SE¼SE¼.

The areas described aggregate 836.23 acres.

LEASE STIPULATIONS

1. For the purpose of preventing watershed damage no occupancy or other surface disturbance will be allowed within 500 feet of perennial streams, riparian areas, wetlands, springs, and irrigation ditches/canals. This distance may be modified when specifically approved in writing by the Authorized Officer of the Bureau of Land Management. This stipulation applies to the following areas: Sec 7 - N½SE¼; Sec 9 - E½; Sec 17 - E½E½; Sec 18 - SE¼SE¼.

2. No occupancy or other surface disturbance will be allowed on slopes in excess of 30 percent or in excess of 20 percent on extremely erodible or slumping soils, without written approval of the Authorized Officer of the BLM. This stipulation applies to the following areas: Sec 7 - lot 3, NE¼SW¼, and N½SE¼; Sec 8 - NE¼; Sec 9 - E½; Sec 17 - E½NE¼ and NE¼SE¼.

3. In order to protect migratory bird nesting within the lease area, surface disturbance and land clearing of vegetated habitat capable of supporting migratory bird nesting is restricted during avian breeding season (March 15 through August 15). Exceptions to the limitation in any year may be specifically authorized in writing by the Authorized Officer BLM.

4. In order to protect seasonal lynx and wolverine habitat, exploration drilling and other development activity will be restrict during the period from December 1 to February 28. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by the Authorized Officer of the BLM. This stipulation applies to the following areas: Sec 8 - NE¼ and Sec 9 - E½.

5. **CULTURAL RESOURCE PROTECTION STIPULATION**

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

6**. ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION**

The lease area may now or hereafter contain plants, animals or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a

designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. 1531 et seq., including completion of any required procedure for conference or consultation.

LEASE NOTICES

An Information Notice (lease notice) conveys certain requirements relative to lease management within the terms and conditions of the standard lease form. Information Notices shall not be a basis for denial of lease operations.

1. Provisions of the Mineral Leasing Act (MLA) of 1920, as amended by the Federal Coal Leasing Amendments Act of 1976, affect an entity's qualifications to obtain an oil and gas lease. Section 2(a)(2)(A) of the MLA, 30 U.S.C. 201(a)(2)(A), requires that any entity that holds and has held a Federal coal lease for 10 years beginning on or after August 4, 1976, and which is not producing coal in commercial quantities from each such lease, cannot qualify for the issuance of any other lease granted under the MLA. Compliance by coal lessees with Section 2(a)(2)(A) is explained in 43 CFR 3472.

In accordance with the terms of this oil and gas lease with respect to compliance by the initial lessee with qualifications concerning Federal coal lease holdings, all assignees and transferees are hereby notified that this oil and gas lease is subject to cancellation if: (1) the initial lessee as assignor or as transferor has falsely certified compliance with Section 2(a)(2)(A), or (2) because of a denial or disapproval by a State Office of a pending coal action, i.e., arms-length assignment, relinquishment, or logical mining unit, the initial lessee as assignor or as transferor is no longer in compliance with Section 2(a)(2)(A). The assignee, sublessee or transferee does not qualify as a bona fide purchaser and, thus, has no rights to bona fide purchaser protection in the event of cancellation of this lease due to noncompliance with Section 2(a)(2)(A).

The lease case file, as well as other Bureau of Land Management (BLM) records available through the state office issuing this lease, contains information regarding assignor or transferor compliance with Section 2(a)(2)(A).

2. Sage Grouse General Habitat Management Areas (entire lease area). To meet the objectives of the "Idaho and Southwestern Montana Greater Sage-Grouse Approved Resource Management Plan Amendment, September 2015 (2015 GRSG ARMPA)," conditions of approval would be imposed on exploration and other development activities within the entire lease area on a case-by-case basis in accordance with the ARMPA management decisions, buffers, seasonal restrictions, and required design features (RDFs).

3. Buffer Distances. There are no recorded sage grouse leks within the lease area however, if discovered, activities will be avoided within the following distances from sage grouse leks:

- linear features (roads) within 3.1 miles of leks
- infrastructure related to energy development within 3.1 miles of leks.
- tall structures (e.g., communication or transmission towers, transmission lines) within 2 miles of leks.
- low structures (e.g., fences, rangeland structures) within 1.2 miles of leks.
    - surface disturbance (continuing human activities that alter or remove the natural vegetation) within 3.1 miles of leks.
    - noise and related disruptive activities including those that do not result in habitat loss (e.g., motorized recreational events) at least 0.25 miles from leks.

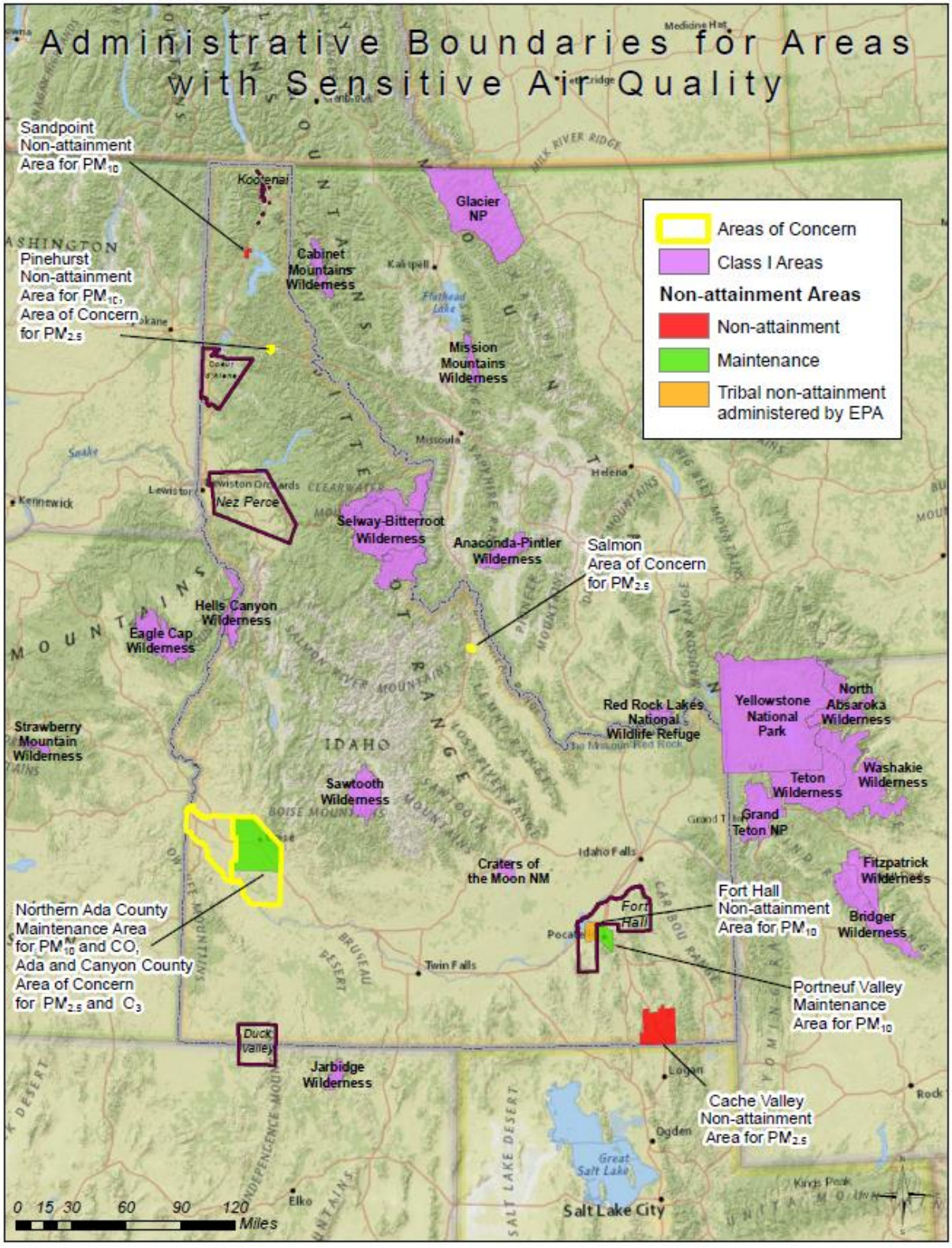
The BLM may approve actions in GHMA that are within the applicable lek buffer distance identified above only if-

- It is not possible to relocate the project outside of the applicable lek buffer distance(s) identified above;
- The BLM determines that a lek buffer-distance other than the applicable distance identified above offers the same or a greater level of protection to GRSG and its habitat, including conservation of seasonal habitat outside the analyzed buffer area, based on vest available science, landscape features, and other exiting protections, (e.g., land us allocations, state regulations): or
- The BLM determines that impacts to GRSG and its habitat are minimized such that the project will cause minor or no new disturbance (ex. Co-location with existing authorizations); and
- Any residual impacts within the lek buffer-distances are addressed through compensatory mitigation measures sufficient to ensure a net conservation gain, as outlined in the Mitigation Strategy (Appendix X of the 2015 GRSG ARMPA).

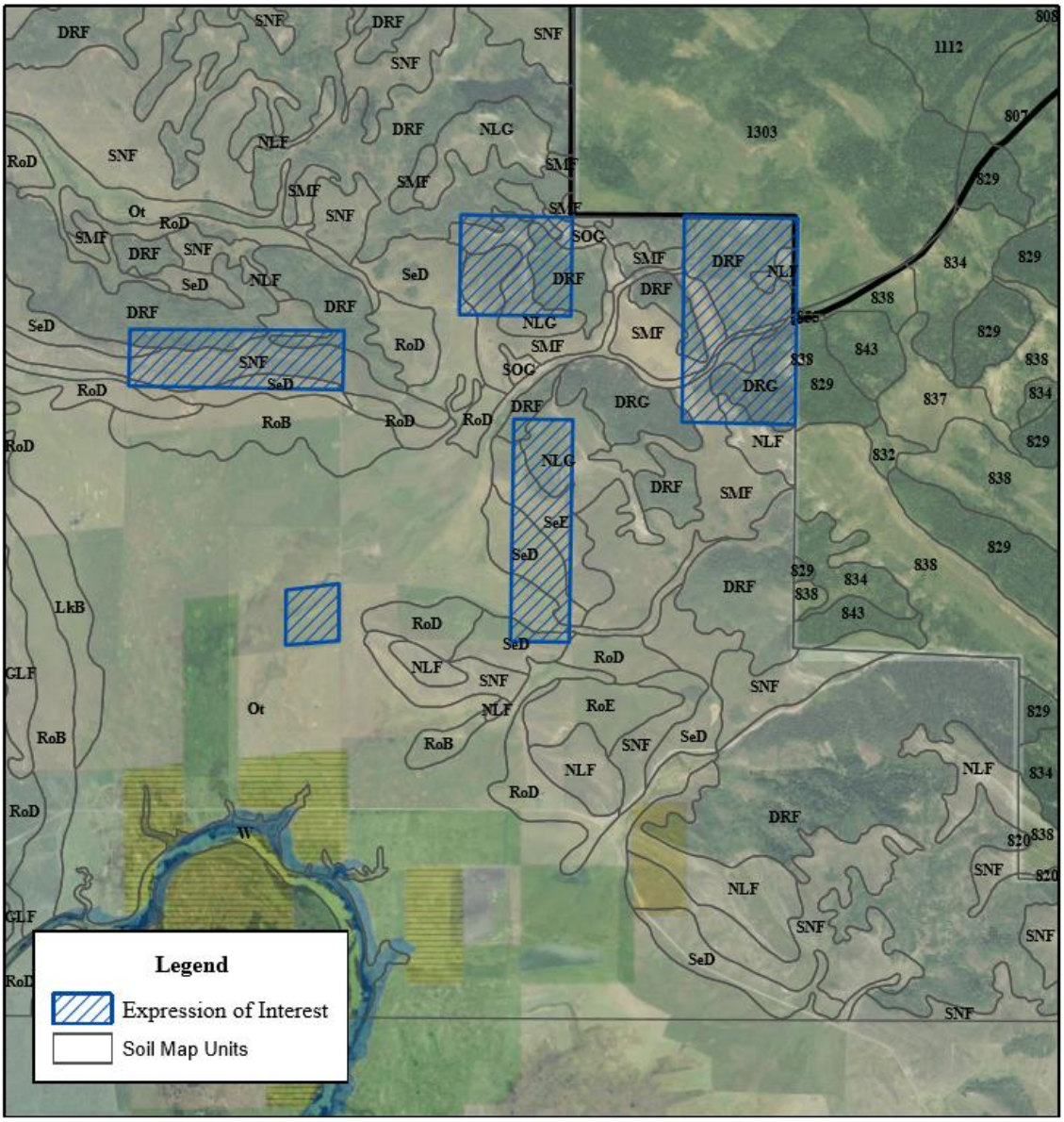
5. To reduce noise disturbance impacts to surrounding wildlife habitat during the migratory bird nesting season and the Greater Sage-grouse early brood-rearing through late brood-rearing seasons [April - September] noise abatement mitigation will be required for exploration and development activities within the entire lease area.

6. Reclamation standards for exploration and development activities will be formally negotiated/addressed through the surface use agreement between the operator and the land owner (forthcoming), at which point BLM will attempt conformity to the 2015 GRSG ARMPA, and require applicable COA's in any forthcoming NEPA analysis.

Appendix 3. State of Idaho Administrative Boundaries for Areas with Sensitive Air Quality (IDEQ, Idaho Air Quality Planning Areas Map, 2012)**.**



Appendix 4. Soil Units within the Competitive Lease Sale Area.



The surface management status ("land ownership") should be used as a general guide only. Official land records, located at the Bureau of Land Management (BLM) and other offices, should be checked for up-to-date information concerning any specific tract of land.

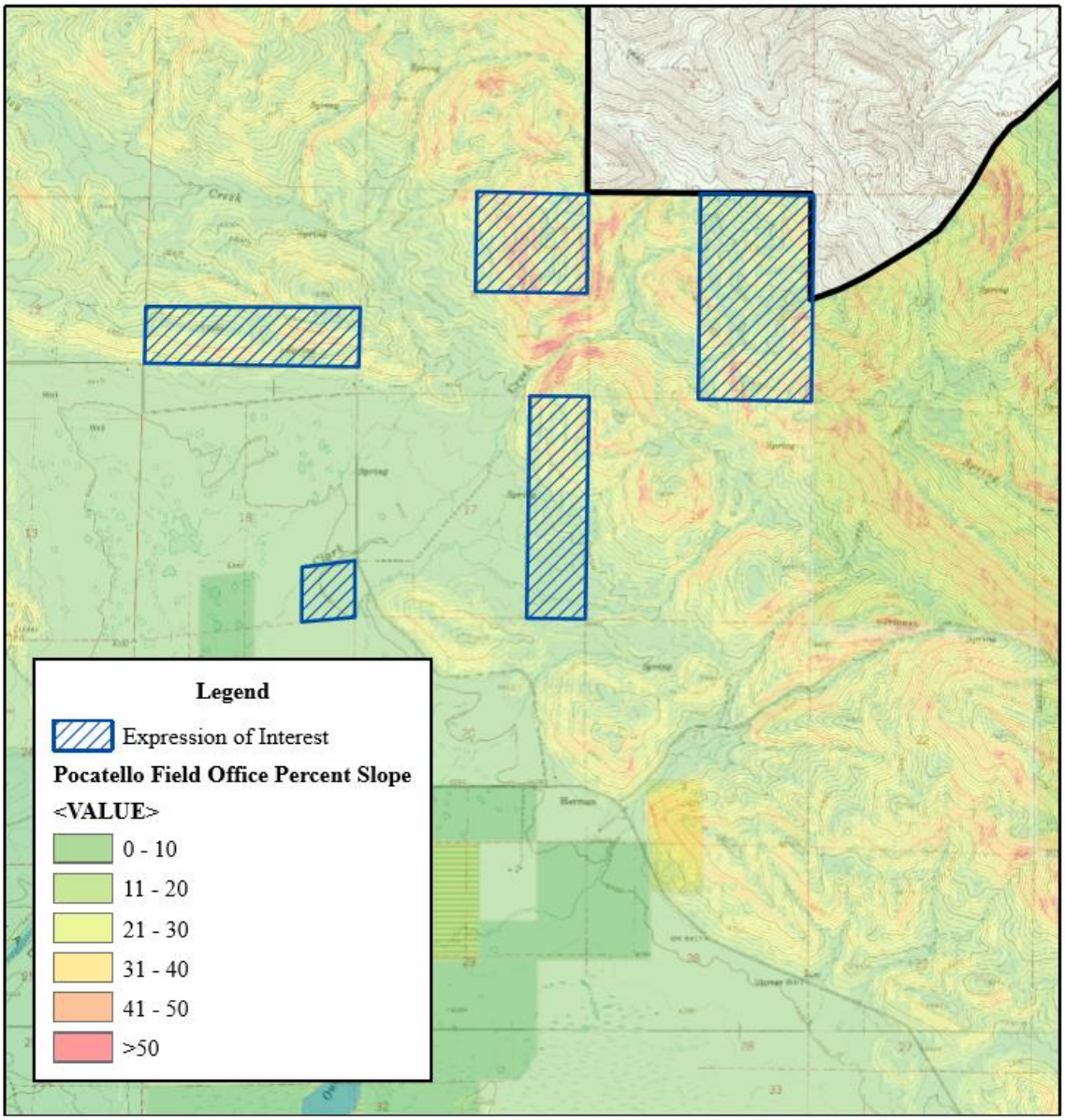
1:40,000

Map Projection: NAD 1983 UTM Zone 12N

No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed. The following cannot be made Section 508 compliant. For help with its data or information, please contact the BLM Idaho State Office Webmaster at 208-373-4000.

Map Created: 2/14/2017

Appendix 5. Percent Slope within the Competitive Lease Sale Area.



The surface management status ("land ownership") should be used as a general guide only. Official land records, located at the Bureau of Land Management (BLM) and other offices, should be checked for up-to-date information concerning any specific tract of land.

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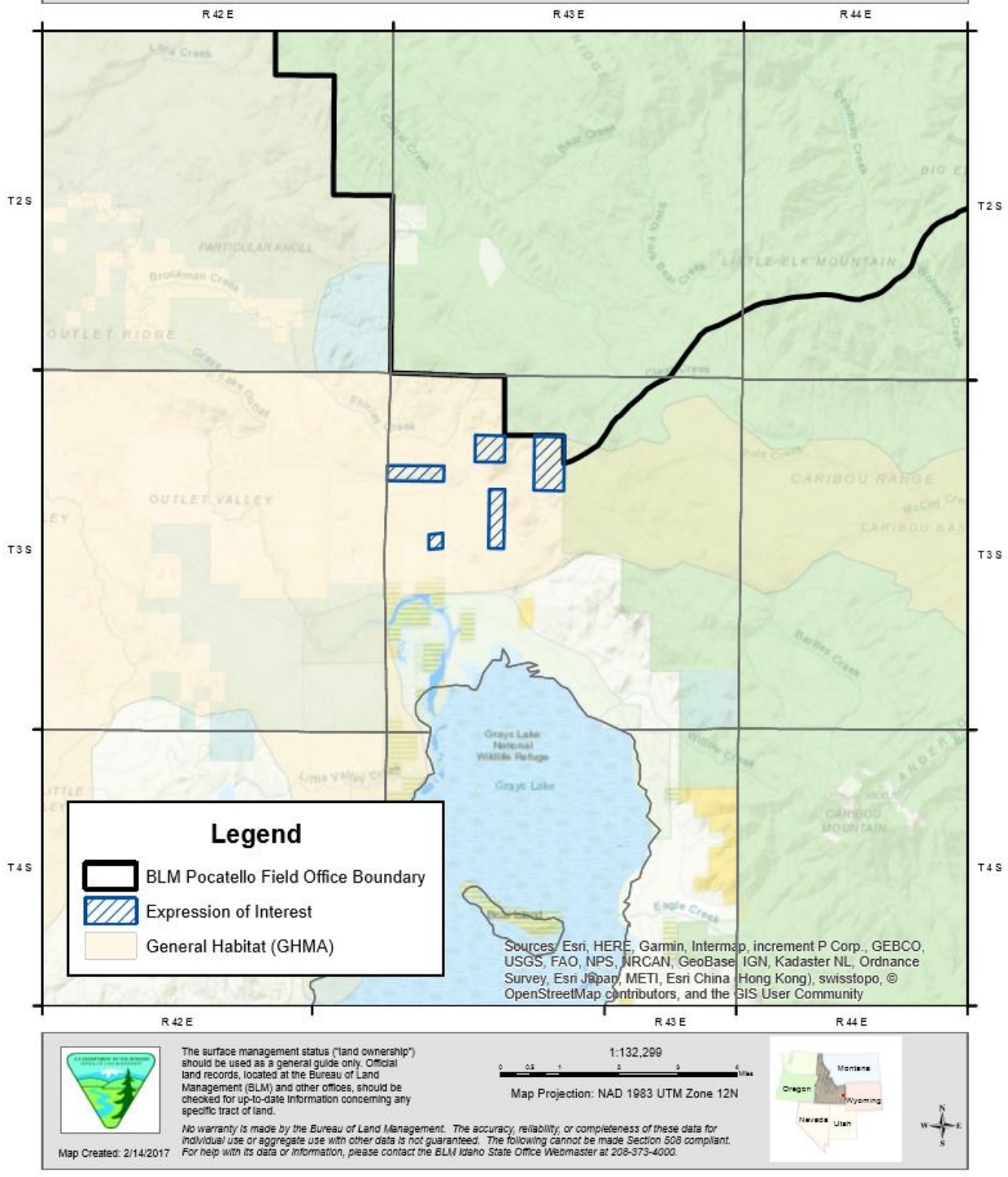
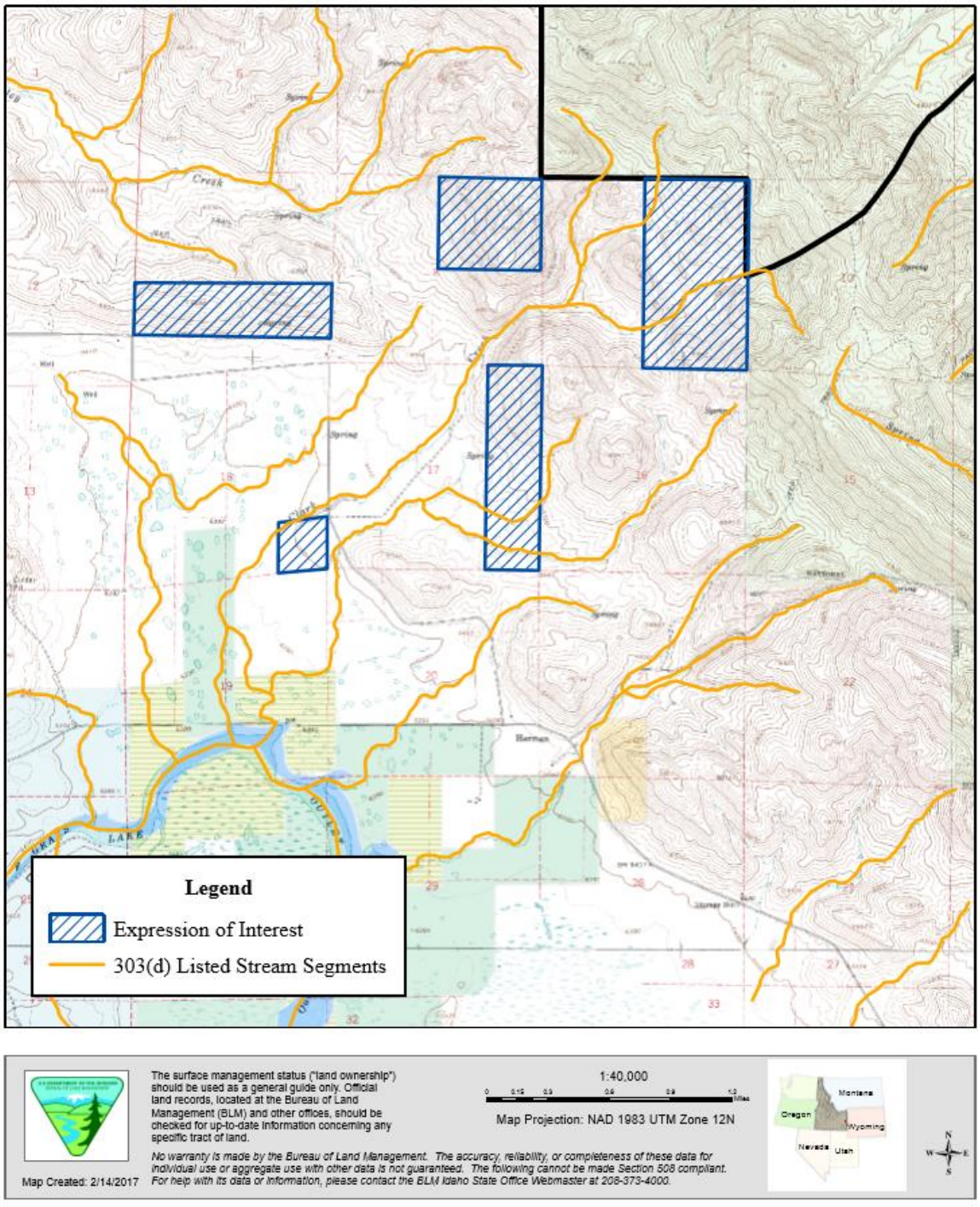
Map Created: 2/14/2017

Appendix 6. Sage Grouse General Habitat within the Competitive Lease Sale Area.



Appendix 7. 303(d) Listed Stream Segments within the Competitive Lease Sale Area.



The surface management status ("land ownership") should be used as a general guide only. Official land records, located at the Bureau of Land Management (BLM) and other offices, should be checked for up-to-date information concerning any specific tract of land.

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Map Projection: NAD 1983 UTM Zone 12N

Montana
Oregon
Wyoming
Nevada
Utah

No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed. The following cannot be made Section 508 compliant. For help with its data or information, please contact the BLM Idaho State Office Webmaster at 208-373-4000.

Map Created: 2/14/2017

Appendix 8. Cumulative Impact Analysis Area.